Industrial FINISHING

★ READY TO WORK AND FIGHT!

Navy Seabees transform desert islands into bases for fighting men. They construct barracks, airfields, docks, gun emplacements, and anything else that is necessary. They are experienced in all types of construction and repair, and in addition every man is an armed member of the Navy. They are trained in the handling of all weapons of modern land warfare and are always ready to drop a shovel and use a rifle if the need arises.

ADVANCE *is always ready, too!*

MORE than ready, in fact eager, to do its part in speeding Victory for the forces of Freedom and Democracy. Members of this organization in the armed forces are fighting hard and those here at home are working hard . . . will work harder if necessary . . . to produce protective coatings needed by the armed forces.

ADVANCE
PAINT COMPANY
INDIANAPOLIS INDIANA

SAVE MAN HOURS

WITH Crusader ONE-COAT CAMOUFLAGE ENAMELS . . .

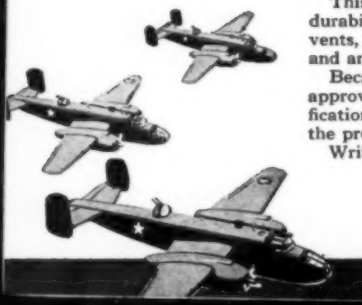
PRODUCTION experience in leading aircraft plants has proven that Crusader one-coat enamels reduce finishing time and lower material costs.

How? First, Crusader enamels do the job in one coat, thus they eliminate the labor of applying a second coat when lacquer is used. Second, because they have easier spraying characteristics they go on the work faster. This permits the operator to cover a given area in less time. Third, they dry to the touch in regular lacquer time. Fourth, a gallon of Crusader enamel goes farther—it covers as much as 700 to 800 square feet per gallon.

This production speed is coupled with greatly improved durability, toughness, hardness and resistance to all solvents, such as, aromatic gasoline, de-icing and break fluids and anti-freeze.

Because Crusader one-coat camouflage enamels are approved under existing Government Aeronautical Specifications, they provide an instant means of stepping up the production rate and conserving man hours.

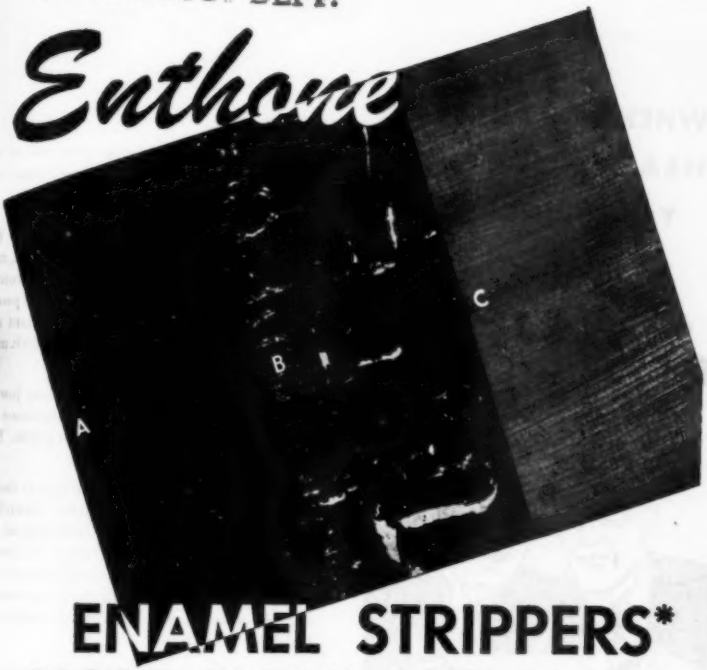
Write us on your letterhead for complete information.



ROXALIN *Flexible* FINISHES
INCORPORATED
ELIZABETH • NEW JERSEY
Box 136

TECHNOLOGY DEPT.

Enthone



ENAMEL STRIPPERS*

WORK CLEAN AND FAST

The above panel shows how fast Enthone Enamel Strippers go to work.

Panel *"A"—Original enamel of urea-formaldehyde type*
Panel *"B"—After one minute in stripper*
Panel *"C"—After two minutes in stripper*

Notice that the enamel lifts away from the surface, leaving it clean and unattacked.

Enthone Enamel Strippers do not attack any base metal or anodized coatings.

Consult Enthone for stripping synthetics, japans, lacquers.

THE ENTHONE CO. NEW HAVEN CONNECTICUT

REPRESENTATIVES IN PRINCIPAL CITIES

*Protected by U. S. Patent No. 2242106

. . . and when you have *synergism*, you are well on your way toward solving your "unsolvable" problems.

WHAT IS SYNERGISM? It is a vital force within each of us, which, when released, transmutes mere competence into sheer genius; a force which enables human effort to produce superhuman results. Or, as one brilliant mind has put it, *synergism* is the spark which makes $2 + 2 = 5$.

The scientist experimenting alone may just miss finding his magic formula. But discussion with a colleague may supply the missing link. That's *synergism!*

So, too, can we join forces with you to find and perfect new products from joint research and development. We have seen synergism at work and respect its power. In finishing, for instance, it is not just selection of a coating that we strive for, but to find from *you* all the requirements of the job, create the finish and work out the entire finishing procedure.

So it was with Zapon finish for plywood planes, gliders and wooden propellers. Manufacturers told us all they could of the conditions under which this equipment must operate. Our technicians studied the finishing problem. The result is Zapon SX-35, a new wood finish with special finishing procedures, now in wide use. It possesses great post-war potentialities. *That's synergism at work. Let's apply it to your problems.*

ZAPON

REG. U. S. PAT. OFF.

ZAPON DIVISION · ATLAS POWDER COMPANY

Eastern Sales: Stamford, Conn. *Western Sales:* North Chicago, Ill.

INDUSTRIAL FINISHES

NINETEENTH YEAR OF PUBLICATION

Industrial FINISHING

Reg. U. S. Pat. Office

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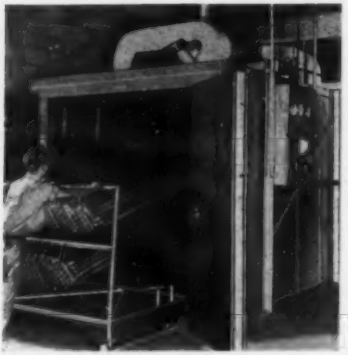
A PERFECT BAKE AT HIGH SPEED



Just More Proof of Why It Will Pay You to Specify

A KOCH OVEN

Furnished to a mid-western manufacturer of steel scaffolding — this KOCH Truck Type gas-fired oven was assembled from standardized units to the customer's specifications. Finished parts are taken from the dip tank, and moved directly into the oven. Specially designed nozzles distribute the heat throughout the oven, insuring a uniform bake in the shortest possible time.

Standardized design makes it possible for you to get delivery of a KOCH oven to fit your special requirements—promptly!

If you need an oven . . in a hurry . . WRITE FOR INFORMATION TODAY!

GEORGE KOCH SONS, INC.

Makers of INDUSTRIAL EQUIPMENT

2118 Penna. Street

EVANSVILLE, IND.

Letters from Readers

Coating for Documents

Will you please send us information on transparent coating for documents? We refer to INDUSTRIAL FINISHING, March issue of 1942, page 75. —P. H. Corp.

Information supplied.—ED.

Tumble Finishing

We are greatly interested in finishing small parts, such as small tubular rivets, by the barrel painting method, and would certainly appreciate any or all information you can give us regarding this process. Will you kindly send us, as soon as possible, the required information or references that will enable us to finish our products? —S. F. Mfg. Co.

Information supplied.—ED.

Silver Nitrate on Acetate Sheets

We would like to get some information on how to apply silver nitrate on acetate sheets, to make it look like a mirror.—Artex S. & S. S. Co.

We have been commercially successful in marketing products silvered through our exclusive process. Up to the present time we have consistently declined to divulge our method of doing this. However, as a matter of courtesy to your publication, we have communicated with Artex Spraying and Silk Screening Co., advising them that you had communicated with us in connection with their inquiry.

We advised them that we do this work and hold ourselves in readiness to cooperate with them in any way

PLANNING OUR FUTURES

WHEN THE lights go on again and our victorious boys come home, they will want jobs with a future—NOT RELIEF.

It is up to us to keep our Industries going and to plan now for future operations.

While serving our Government with total productive capacity, we are exerting every effort to develop products which may well lead the post war parade in Protective Coatings and Industrial Finishes.

Our research laboratories have already developed numerous products which may be applicable to your future plans. *You need only write, indicating your interest, to obtain information and service.*

V. J. DOLAN & COMPANY, INC.

Mnfrs. of "Unquestionable Quality" Industrial Finishes

1830 N. LARAMIE AVE. CHICAGO, ILLINOIS

NO HEAT LOSS FROM BURNER TO PRODUCT

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BURDETT

(The Original)

"INFRA-RED PRINCIPLE"

GAS BURNER

Learn all the facts about this revolutionary "Infra-red Principle" Gas Burner.

Speed and power of heat transmission from this "Infra-Red" refractory type surface has been scientifically proved to be four times greater than any other source—with no heat loss between burner and product of process. An even temperature is provided across the entire expanse of radiation—void of focal or hot spots—with resulting greater uniformity of product, lower fuel consumption and doubled output.

21 NORTH LOOMIS STREET, CHICAGO

BURDETT MANUFACTURING CO.

Infra Red Gas Burners

United's SPEC. COATINGS

No. 25325-ES680A. Lustreless Olive Drab class 204. Can be sprayed or brushed; air dried or baked. Has unusual hiding power, delivers great mileage. Used by the ton for coating material.

No. 23696-ES680A. Rust Inhibiting Primer has great adhesion, withstands abuse. Can be sprayed or brushed; air dried or baked. Hiding power and mileage unusual. Now in war production use.

Y1076A-ES680A. A fine dull black wrinkle, easy to apply. Produces a uniform, attractive and durable finish. A three-star performer.

No. 25520-3-67E. Olive Drab Enamel (infra-red reflecting) now in use for dip coating shells; delivers great mileage, air dries quickly and speeds producton.

Write for complete data and generous working samples.

United Lacquer Mfg. Corp.

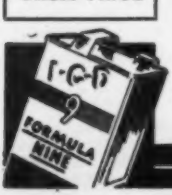
General Offices & Factory: LINDEN, N. J.
New England Mfg. Div.: Boston, Mass.
Lacquers — Synthetics and Special Protective Coatings for All Surfaces

I. C. D. FORMULA NINE
NON-INFLAMMABLE « wax free REMOVER »

for paint, varnish, lacquer, baked enamel, adhesives

EASY TO APPLY—NO AFTER-CLEANING

ORDER TRIAL GALLON AT DRUM PRICE



I. C. D. FORMULA 9 is the standard of safety and quality . . can be sprayed or brushed . . doesn't raise grain nor discolor . . quickly removes all kinds of finishes and coatings . . costs less to use . . saves time, labor and material.

SPECIALTY COATINGS—I. C. D. Labs. have specialized in the formulation and manufacture of non-inflammable coatings and substitute finishes. If you have a tough coating or finishing problem send in your specifications, finishing schedule and requirements. Immediate action and a prompt reply promised.

INDUSTRIAL CHEMICAL DEVELOPMENT CORP.

they may require. We specifically mentioned your name to this concern and advised them that the information was being supplied to them at your instigation and request.—Flexmir, Inc., Newark, N. J.

Rust-Proofing Steel Tubes

We are looking for a method of rust-proofing steel tubes, both inside and outside of the tubes. Are you able to recommend a process that will answer our requirements, or refer us to some concern that will handle this for us?

In addition to rust-proofing, we have to finish the outside of the tubes with a lacquer—black or olive drab. These tubes will slide one inside of the other—two smaller sizes and one larger (outside) size, similar to camera tripods made of tubes, and with about the same tolerance between tubes.

Bonderizing and Parkerizing will not do. We have tried them. After all, they are only a base for a further finish, and are too soft to allow for friction or abrasion.

Also, the various "black" methods, which carry an oil or wax coating, are unsatisfactory.

Bear in mind that this unit we are working on, will be subjected to all kinds of atmospheric conditions in all parts of the world, being intended for U. S. Army and Navy use.—A. Co.

What Plastic Paint Does the Navy Use?

I would appreciate any information that you can give on the plastic paint the Navy is now using in place of red lead. This plastic paint is applied hot, 300° F.—J. W. D.

Will some reader please send us this information?—ED.

Bottle-Cap Refinishing

We are manufacturers and distributors of concentrated beverage syrups. We have about 200 franchised bottlers scattered around the country, all of whom naturally come to us for advice in solving their problems.

One of the major problems in the beverage industry today is reclamation of bottle cap crowns, as you undoubtedly know. We are having used crowns shipped to us and are putting these through a series of cleaning baths—mostly caustics—thus removing any lithography or printing on the caps, as well as removing the cork

Have you a Tough metal cleaning problem....?

—These engineers can help you quickly—at no cost or obligation!

If you want to cut your degreasing costs and speed up your metal-cleaning work—if you have a difficult metal-cleaning job that's giving you trouble—get in touch with us AT ONCE! There is a lot more to solving a degreasing problem than just buying some new degreasing equipment.

Our engineers travel from coast to coast working on every possible type of metal-cleaning operation. They have licked some problems that were called impossible. They are SPECIALISTS IN DEGREASING with many years of experience in that field. They will tackle any job—without a penny of cost or obligation to you—AND WE MEAN JUST THAT!

Write TODAY telling us what your problem is—and you will get quick action!

Phillips MFG. CO.

3428 W. Touhy Ave., Chicago, Ill.

ECLIPSE SPRAY GUNS

... Now Made of PLASTIC

★ A ¼-lb. lighter than with the aluminum body.

★ Strong, durable, not affected by paints, thinners, etc.

★ On priority, but delivery is good.

★ Send for Catalog 80-P.

ECLIPSE AIR BRUSH COMPANY, Inc.

392 Park Ave. Newark, N. J.

discs. After the caps are thoroughly cleaned in this manner we are then reforming them by a punch press operation and inserting new cork discs; but to date we have not attempted to refin'sh these reformed crowns in any manner.

The fact that we are not refinishing crowns is objectionable, inasmuch as they naturally rust very quickly when exposed to the moisture of refrigerators and, although this does no harm, it does make an unsightly package. We now come to the point of this letter; namely, asking for advice relative to finishing formed reclaimed crowns like samples we are sending you. These samples have been cleaned.

Can you please give us any advice that you have at hand relative to practical and economical methods for rust-proofing a formed crown, either by chemical or paint method? Upon investigation we have found that we cannot get necessary plating equipment, so any plating methods can be forgotten. When we speak of a "chemical method," we are not conversant with the subject, but hope that you know of some concern who has a process of chemical dipping which produces a rust-proof coating on blackplate, terneplate or tinplate. (The crowns are made of any one of these three metals and are assorted and cannot be separated).

Or possibly you know of some developed process for dipping and baking the crowns, which is fast and economical and which has been proven to be pratical. All of the dipping and baking processes which have come to our attention, to date, seem to be impractical.—S. Beverage Co.

See illustrated feature article on this subject elsewhere in this issue—EDITOR.

Letter From Malta

(24th March, 1943)

My word, your publication does get around! Here am I, one time French polish and cellulose representative in London, England, now a gun fitter, seated in a little hut on this vast island called "Malta." [17 miles long, 8 miles wide and 58 miles south of Sicily in the Mediterranean Sea.]

At one time I thought that gun cotton had only one good use, and that was for cellulose lacquer manufacturing; but having spent 2½ years here, I realise that in the manufacture of explosives it is even more superb. I am still all in one piece though, only as you know, we representatives are hard nuts to crack. I often get INDUSTRIAL FINISHING sent to me by my firm, and I spend many enjoyable hours reading all the "dope," as you say.

One thing that strikes me as I read the cellulose [lacquer] advertisements,

(Continued on page 68)

★

Lacquers

Fillers

Stains

Enamels

Paints

Around the World . . .

Stille-Young Finishing Materials *go with the troops* and are on equipment and armament that accompany our fighting forces into every corner of the earth. This war-time service will pave the way for greater service in time of peace when American industry, initiative and resourcefulness will be called upon to build a more stable and enduring future.

★ ***Use Stille-Young Finishes and "Finish with Confidence"***

THE STILLE-YOUNG CORPORATION

2300 North Ashland Avenue • CHICAGO, ILLINOIS

THE LILLY COMPANY
HIGH POINT, N. C.

Play Acting

is all right in its place, but—

. . . . when you really need a doctor you call in the most competent one you can find—a "specialist" if possible. . . . In peace-time we specialized in formulating specific finishing materials for specific purposes and products, having adopted the slogan, "With The Right Finish—You'll Finish Right.". . . In war we are still specializing and our slogan is just as appropriate now as in peace-time. We have converted practically all of our resources, experience and knowledge to the making of finishing materials for all war purposes. Three plants are at your disposal—Indianapolis, High Point, N. C., and Gardner, Mass.

LILLY VARNISH COMPANY
INDIANAPOLIS, IND.

Is yours a
KNOTTY
finishing problem?

IF YOU ARE having trouble in your paint shop or finishing department—"CALL on WALKER." Our experience in formulating and supplying trouble-free specification finishes to war production industries is at your command.

Walker Protective Coatings are developed to stand the pressure of unusual stress and strain; to protect against extreme weather conditions; to afford flexibility when meeting unusual requirements; and to adhere to all surfaces, meeting government specifications in every detail.

Walker's finishes are at all the battlefronts, on land, on sea and in the air doing the job for which they were developed. Investigate. . . .

PRIMERS • SURFACERS • LACQUERS
WRINKLES • SYNTHETICS

"Call on Walker"

H. V. WALKER CO.
Elizabeth, New Jersey
MODERN PRODUCTION FINISHES

OXIDINES

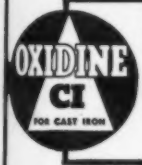
Black Finishes go to War

BLACK FOR BRASS AND COPPER—

An excellent adhering hard black for copper and copper alloys such as brass or electro plated copper and brass. No special equipment needed—just add salts to water, heat to 200° F. and black is obtained by immersion for 3-15 minutes. Work can be handled in bulk.

BLACK FOR ZINC—

A durable velvety-smooth adherent black for zinc, zinc die castings, and electro plated zinc. Simple equipment—just add Oxidine Z salts to water, heat to boil, and immerse work for ½-2 minutes. Used on all types of work from small precision parts to large castings.



BLACK FOR CAST IRON—

An unusual simple method of obtaining a dense black finish on cast iron at low temperature. Oxidine CI salts are added to water, heated to 212° F. Cast iron parts are immersed for 5-10 minutes. No special type cleaners required. Used on a great variety of cast iron parts.

BLACK FOR STEEL—

Used widely by industry throughout the world for 10 years. Add Jetal salts to water and heat to 285° F. A deep, penetrating black is obtained by a 5-10 minute immersion. Surfaces after-treated with Jetoils resist 25-300 hours salt spray.

If you have a black finishing problem.

WIRE, PHONE, WRITE

ALROSE CHEMICAL COMPANY

Providence, Rhode Island — Tel. Williams 3000-3001

Fast, Quality Painting of Heavy Machinery

What surface-preparation and protective painting operations are included in the production departments of R. G. LeTourneau, Inc., and how this work is carried on with such ease, speed, efficiency and safety.

BY ROLAND NEFF

WHETHER it's to construct a frosty Alcan highway or an equatorial airport in Africa, earth-moving equipment today must be protectively coated (painted) to "take it" for at least three years. That's a "must" of the United States' war-winning government contracts.

Durability is teamed with speed in the production set-up at plants of R. G. LeTourneau, Inc., manufacturer of heavy earth-moving machinery. Because the company's giant Tournapulls, scrapers, dozers, power control units, military cranes and other products are built almost entirely by arc welding, the actual painting is not begun until an entire "unit" is welded together. Time is thus saved, as sandblasting and washing cleans off weld berries and other welding residue in one complete stroke. Painting is accomplished quickly, smoothly and thoroughly because there are no cracks nor joints to require special attention.

For instance, an LS scraper capable of holding 11 cubic yards of dirt, is a typical LeTourneau unit. The Standards, or Time Keeping department has found that this scraper requires one man 132.4 minutes for sandblasting. This same popular earth-moving piece also requires only 17.8 minutes for washing, 41.9 minutes to paint with red primer, and 89.4 minutes to spray the Army's olive drab, plus stenciling and inspection. In just 18 more minutes the scraper is loaded, blocked and ready to go out on its freight car.

In other words, the cleaning, painting, stenciling and packing of an LS scraper, which weighs seven tons and is 29-ft. long, 9-ft. wide and 10-ft. high in overall dimensions, can be completed in but five hours!

Sandblast Booth Holds the Complete Unit

Since this Army-Navy "E" firm is producing 100% for combat engineers, supply troops, etc., informative production figures must be restricted. It is safe to tell, however, that one large, 20x40-ft. sandblast room, two smaller blast sections each 12x12-ft., and three paint shops are in LeTourneau Plant No. 1 at Peoria, Ill. One paint shop is 20x40-ft., and the two others are half this size. Simi-

lar blast-cleaning and paint shops may be found in Peoria Plant No. 2 and in other LeTourneau war factories at Toccoa, Ga., Vicksburg, Miss., Stockton, Calif., and Sydney, Australia. One "perpetual" roto-shot blast has recently been installed at Peoria.

Special-built jigs and platform trucks are used to move the huge units in and out of the sandblasters. Standard silica sand, directed from pressure hose, is used to clean the surfaces. Grated iron flooring allows the sand to fall into a sub-hopper equal to the size of the blast room. Exhaust fans and blowers move the sand in continuous motion, making the sand supply last for several weeks. The sand "dust" is automatically removed during the continuous circulating process.

Rubber hose, used to feed the sand, lasts six to eight months, despite the high pressures and extremely hard wear. External rubber, a fabric layer, and a ½-in. thickness of pure gum filler, which keeps the sand in line, form the major components of the hose. High wattage light bulbs, covered with glass safety covers, furnish illumination to every part of the unit being cleaned.

Naphtha-Acetic Acid Washing Precedes Red Primer

After the sandblasting has smoothed and roughly cleaned the

In the sandblast room where hooded operators spray abrasive sand to smooth and clean all surfaces of heavy machinery before painting. To reach the upper areas, the operators stand on platforms at sides of room. This 20-yard carryall is mounted on a towing frame fitted with old tires.

unit, the first washing begins. The washing solution is a mixture in the proportion of 55 gallons of naphtha to one gallon of acetic acid. Washing removes all major traces of chemical residue caused by the initial welding, and cleans the unit sufficiently to allow the later red paint primer to adhere properly and thoroughly.

Normal procedure for the larger earth-moving units calls for the initial wash to be followed by removal of the units on factory trucks. The units then receive their sheave pins, bearings and other minor but highly important parts. Inspection follows.

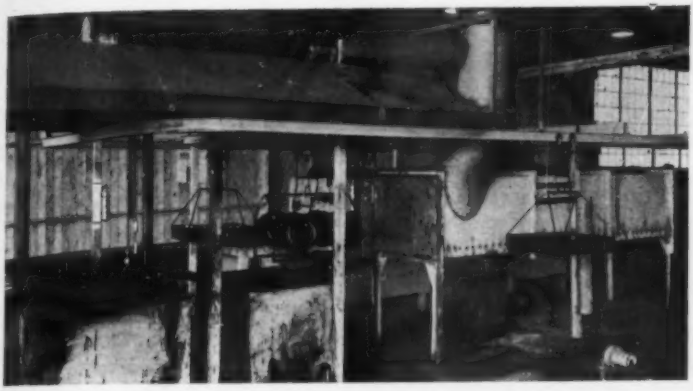
The units are now ready for the red prime paint coat, which quickly dries. As soon as this drying is complete, the job is given its second and final wash. Plain naphtha is now used, as this washing is intended purely to remove any heretofore missed foreign particles that might cause rust or other decay if they remained with the unit as it goes forth to serve under cold and hot, and wet and dry combat conditions in any part of the world.

"Unit" Now Ready for Battle Station!

"Standards" tells us the units are now only 89.4 minutes away from being loaded and blocked on the freight car. The time mentioned allows for the olive drab paint to be applied by spray gun, the stencil work and a final inspection. A standard cardboard stencil and brush are employed.

You can't send a Flying Fortress out to do battle until you give it an airport and runways on which to take off and land. You can't move land troops far without ammunition and general supplies, which requires military access roads. You can't build airports and roads—often under gunfire in wartime — without well manufactured, properly painted earth-moving equipment. That's why government contracts, as well as LeTourneau's insist on these

Yes, every square inch of this giant machine had to be smoothed, cleaned and protectively coated for outdoor service—which might mean any climate in the world. Note 6-ft. man standing, dwarfed by a 9-ft. diameter tire at rear. This "World's Largest Excavator," holding 42-cu.yds. of dirt, heaped, is already giving way to a 60-yd. job which has passed its experimental phases.



Machined small parts are placed in carrier baskets, dip-coated with oil and wrapped well before being packed for shipment to distant points.

exacting cleaning and painting standards being applied to this earth-moving machinery.

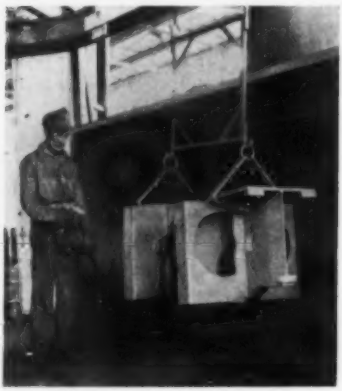
The smaller sandblast and paint shops, mentioned heretofore, are sufficient for the cleaning and painting of power control units, dozers, and tractor and Tournapull-drawn military cranes. The cranes are capable of lifting and moving 40-ton airplanes at speeds of approximately 15 miles an hour across landing fields, between hangars and runways.

Parts Give Women Chance to Work, Too

Up to this point, I have purposely omitted mention of such subjects as women in war work, parts preparations, general safety and employe morale. Obviously, with the 7-ton LS scraper being just a medium weight-and-size product at LeTourneau's, women can't be expected to push, or even crane, these units about the shops. However, where the Quartermasters ask for a 3-year guarantee on units, they demand a 5-year perfection on parts. And a year's supply of parts must go out on the same carload with every unit.

Women can handle smaller parts, and so the LeTourneau small-parts department employs many women. Bearings, oil seals, bearing races, nuts, bolts and other small parts pass under their nimble fingers from conveyor lines to work benches to be made ready for final shipping.

Oily and dirty parts are dipped in a 2W solution and emerge covered with black, protecting paint. They are then air-dried, packed in No. 4 Dearborn waterproof paper, wax packed, and finally placed inside a Dennison waterproof overall paper cover. Nuts, bolts and other small parts, which cannot be so painted but must be protected against rust, dust and similar factors, receive a complete oil emersion. After that they are carefully wrapped in Grade A Dennison ordnance paper, wax-sealed, and placed inside cardboard boxes. Scale weighing, strapping, stenciling, etc., follow according to specific requirements of destinations of various parts. *(To next page)*



Parts hanging from an overhead trolley pass into and out of spray booth where they receive their prime coat. Spray operator is wearing respirator.

Waterfalls "Pour It on for Victory!"

Indicative of both the LeTourneau "Pour It On For Victory" wartime theme and general safety practices, are colorful "waterfalls" used to purify the air in the paint spray booths. Waterfalls of 1000-gallon capacity are kept in continuous motion in the small spray paint shops, with the water being changed every 24 hours. The large paint rooms have 5000-gallon waterfalls, completely changed once every three weeks but cleared of residue each hour.

Suction fans draw the paint fumes and air through the waterfalls to be purified. The paint-filled air is coursed into the waterfalls through a filtering setup, purified, and blown back into the rooms. Thus excess paint fumes are kept out and pure air is constantly entering the painting areas. Each waterfall, with the water running down sheet-metal sidings into catch basins, covers almost the entire depth and width of one end in each paint shop.

Respirators for protection of the mouths and throats of sprayers, are worn. Sandblast operators wear heavy rubberized hoods which cover their head, shoulders and body to the waist. The blasters' hoods contain face pieces that withstand the beating they take from the sand. The blaster can see out, but his face cannot be seen by anyone looking in from outside of the hood. Air for breathing is supplied through a hose which is of ample length to allow the workman to move about freely. The hose enters the top of each hood to give the blaster a continuous supply of fresh air. The sandblast operators are able to work several hours if necessary without emerging from the blast room, though they usually rest at 2-hour or 3-hour periods.

Constant watch is kept over both sprayers and sandblasters to prevent them from contracting any occupational disease. Although no such difficulty has yet arisen, the men are subjected to complete physical examinations every three months. Complete X-rays accompany each check-up.

Blower and suction systems constantly operate to move fresh air into, and fumes out from all sections of the LeTourneau painting departments. In places like the women's parts packing area, where oils and inflammable waxes and papers predominate, the "no smoking" rule is strictly enforced. Precautionary safety principles are second nature with the finishers and shippers. It is interesting to note that there has never been a serious accident in the LeTourneau metal cleaning and painting departments in the past years.

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You know AD-LEA-SIVE, a special glue-base sizing, and what it can do to promote more economical polishing by:

1 . . . eliminating the necessity of setting up wheel-heads with cement or glue and loose abrasives;

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5 . . . increasing wheel life;

6 . . . increasing wheel production time;

7 . . . reducing wheel inventories.

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Burring, Buffing and Polishing . . . Specialists in the Development of Production Methods and Compositions

Giant FINISHING DE
FOR GIANT BOMBE

DESIGNING and installing spray painting equipment to do a specific job has been the business of the Binks Manufac turing Company for nearly half a century. The installatio shown here was made recently by Binks in a mammoth new war plant. The giant three-deck water wash spray booth spray painting equipment and accessories were designed by Binks engineers to keep finishing abreast of increased produc tion . . . to provide healthful working conditions.

Binks wide peacetime experience in designing and installing tailor-made spray painting equipment has been of infinite value to companies in engineering the special equipment needed to speed up the finishing of planes, ships, bombs shells, tanks, guns, torpedoes and other war equip ment. The giant installation illustrated here and the hundreds of Binks installations in other war plants throughout the country, not only guarantee faster war production now . . . but point the way for better spray painting methods for all when peace comes.

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BINKS MANUFACTURING COMPANY

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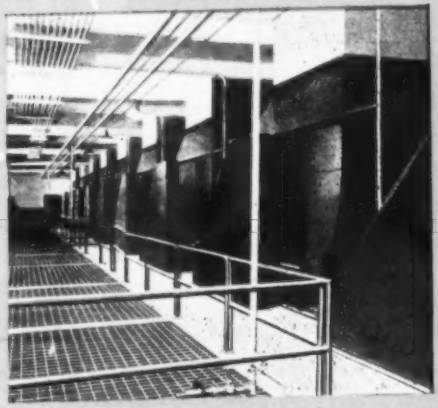
This three-tier Binks water wash spray booth is one of the largest in the world. It helps to speed the finishing of giant Boeing bombers.

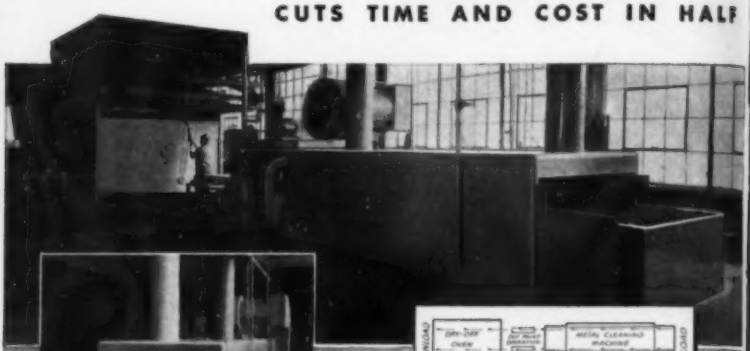


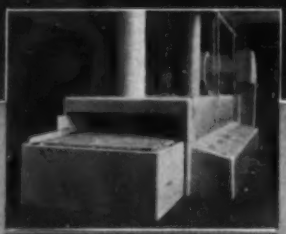
A behind-the-scenes view showing the motors, starters, blowers and pumps needed to operate the giant water wash spray booth shown above.

A LOW COST FINISHING SYSTEM

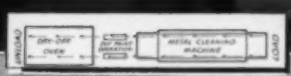
Developed by MAHON Engineers

CUTS TIME AND COST IN HALF





TOP: Complete installation. Showing straight line production.
CENTER: Cleaning Machine, with apron-type conveyor, accommodates 3 products, each a different size and shape.
BOTTOM: Unloading area. Overhead conveyor, heating equipment, safety devices and controls all entirely automatic.



● The unprecedented demands of war have taxed the resources of the Mahon organization to the utmost to design, build and install—in record time—equipment that would handle efficiently and economically enormous production schedules. But saving time and money is just as vital to those manufacturers whose production is of a more moderate size. In scores of such cases, Mahon engineers have cooperated to the fullest possible extent. The installation of finishing equipment, pictured here, is a typical example. This company, The Motor State Products Company, Ypsilanti, Michigan, manufactures three essential products, each a different size and shape. Their problem was the procuring of finishing equipment that would effectively handle all three. Cooperating with the company's engineering staff, Mahon engineers developed and installed a specially-designed metal cleaning machine and a dry-off oven, with handling equipment for a dip painting process located between. In this installation three important things stand out. Initial expense was gratifyingly small. Production time and cost was cut better than half. Only four men now are required to handle all finishing operations.

If a finishing problem exists in your plant—no matter whether your operation is large or small—Mahon engineers will be glad to work with you in planning speedier and more economical production. There is no charge for consultation.

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DETROIT — CHICAGO

Designers and Manufacturers of Complete Finishing Systems, Metal Cleaning Machines, Rust Proofing Machines, Hydro-Filter Spray Booths, Ovens of All Types, Filtered Air Supply Systems, Hydro-Fume Dust Collectors and many other Units of Special Production Equipment.

Refinishing Bottle Caps with Lacquers or Enamels

BY A. H. WARTH
Chemical Director
Crown Cork & Seal Co.

Photo, courtesy of Roxalin Flexible Finishes, Inc.

SUBSTANTIAL quantities of used bottle caps have been finding their way back into useful service — after a suitable reclaiming process. Manufacturers of alkali cleaners have been of considerable help to the bottlers by providing rust-inhibitive detergents for cleaning the caps. These cleaning agents not only remove the outworn lithographic decoration, but loosen the cork discs so they can be separated by floating them free in water.

The cleaned bottle caps are thus made ready for the protective treatment that will not only improve their appearance, but which is to make them substantially rust-proof when they are reconditioned and eventually used again in bottling beverages. The reforming or reshaping of the cap is done either before or after the cleaning; usually before. A fairly large proportion of caps returned by consumers are too damaged for reconditioning.

Four Steps Required in Reclaiming Bottle Caps

The process of reclaiming used bottle caps involves four steps: 1) cleaning, 2) rinsing, 3) refinishing, 4) replacing inserts. When using caustic soda in washing these metal caps, a solution of hot caustic of mild strength at a temperature of 180° F. is preferred. The caustic washing must be followed immediately with a thorough rinse in hot water to prevent the caps from rusting. It is best to avoid placing too much dependence on

[*To page 26*]

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Global war imposes almost unimaginable hardships on war finishes. That is why, in developing them, Sherwin-Williams uses the severe service conditions war finishes actually encounter as a minimum test standard.

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PLANES finished with Sherwin-Williams Aircraft finishes.

AMMUNITION and shells. Coated with Sherwin-Williams Ammunition finishes.

VEHICLES protected and finished with S-W Kem or regular enamels.

You save valuable time by letting Sherwin-Williams fill your war finish requirements — because Sherwin-Williams supplies finishes for every war job as well as the latest technical data covering the whole field of war finishes.

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WRITE, WIRE OR PHONE THE SHERWIN-WILLIAMS COMPANY, CLEVELAND, OHIO

caustic soda as a reagent. It is better to follow the recommendations of a reliable manufacturer or supplier of cleaners, as such an organization can supply detergents that include rust-inhibitive agents. The caustic, or approved cleaner, will remove the old finish, whether varnish, enamel, lacquer, or lithographing, and will loosen the adhesive that holds the inserts.

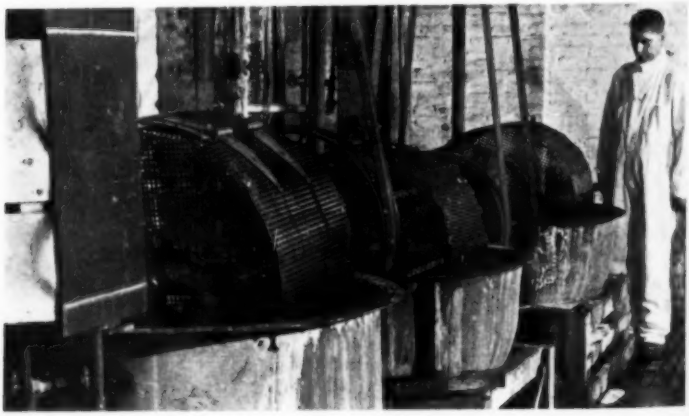
Corks are removed from the caps by cold running water. The caps, free from their corks, are then rinsed in hot water (at a temperature of at least 180° F.) to remove traces of caustic. When the caps are removed from the water they will dry quickly if thoroughly drained.

Refinishing operations may be classified broadly as: 1) chemical treatments in which the surface skin of the steel is converted to a black oxide and then coated with wax; and 2) lacquering or enameling, which provides durable and attractive protective coatings. This article will be confined entirely to the latter systems of treatment, of which there are now four distinct methods of application, namely, spraying, tumbling, whirling and conveyor roller.

Spray Finishing

The refinishing of reshaped bottle caps was at first applied in the reclaiming of used caps. Caps were washed four ways: 1) cleaned in an alkali solution, 2) rinsed in hot water, 3) sterilized in a chlorine solution, and 4) given a final fresh-water rinse. The caps, thoroughly drained, could then be placed bottom side up, on a line of endless belt passing through a drying tunnel, or under drying lamps, and automatically turned over on a ½-in. mesh screen-conveyor when the tops and skirts were given a spray coat of suitable base lacquer of the desired color. This coat was then allowed a sufficient time for all of the lacquer solvent to evaporate from the film before dumping them into a box or storage bin. The discs in the caps were given a spray coat of clear lacquer.

The method of treatment just



Cleaning, rinsing and drying equipment. Photo, courtesy of Chas. E. Hires Co.

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QUARTERMASTER CORPS BUNK BEDS — SPEC. OQMG-63D

First Coat—Reliance 63D-Gray Primer meeting Spec. TAC ES 680, Class 102

Finish Coat—Reliance 63D-OD Gloss Enamel meeting Spec. 3-177

This is another Reliance "Specification" finish that has been developed for government war work equipment, such as desks, files, chairs, lockers, cabinets, beds, trailers, trucks, ordnance. In addition, we are supplying airplane finishes direct to the Army and Navy.

Whether yours is a war work or a home problem, write us about it — there's no obligation involved in helping you.

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Louisville, Kentucky Chicago, Illinois

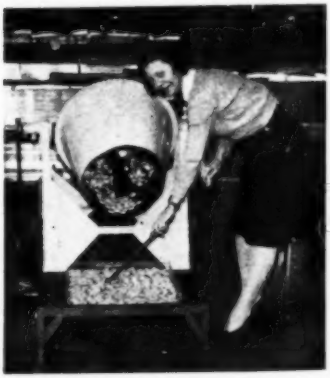
Putting bottle caps into the tumbler.

described has been largely superseded by the spray method of coating the caps without cork inserts. The cleaned re-shaped caps are arranged dome up, on a coarse screen conveyor which travels past spray guns located above and below the screen conveyor. If the lacquer is of the baking type, the spray-coated caps are then passed through an oven which dries and toughens the lacquer, so that it will withstand hoppering, re-crowning, and pasteurization. Baking also hardens the lacquer sufficiently to allow good adhesion between the cork and the metal cap.

Preparing coating enamel for tumbler.

Tumble Coating

The tumbling method is well known to button manufacturers. The principle of operation is to place a quantity of small articles in a tumbling barrel, and then add the minimum amount of coating material that will just coat all surfaces of the pieces. The tumbler is then closed, and after a matter of minutes the pieces are ready to be removed. For example, with bottle caps, one fluid ounce of enamel may cover a gross (144) of caps, and is added in that proportion. The tumbling will take from 5 to 20 minutes.



Emptying the tumbler of coated bottle caps—pouring them onto wire trays for drying. Tumbler photographs, by courtesy of R. E. Greenholtz.

Then the caps are poured out on a coarse screen tray. They can be spread out with a wooden paddle into a thin layer if the enamel is a slow-drying one, before they are heat dried. Marks on wet caps

disappear when heat hits the coated surface. A convenient size for the trays, or ½-in. mesh screen, is 30x30-in. If the enamel is fast drying, they must be arranged in single layer, preferably dome up, and then dried under heat-drying lamps (infra-red lamps) or by any suitable oven.

Whirl Finishing

The whirling method is one that is customarily applied to small objects. In applying it to bottle caps, the cleaned re-shaped caps are placed in a wire basket which is arranged in a closed container. The bottom half of the container is filled with lacquer, so that the wire basket can be immersed in it and then raised clear of the lacquer. The basket is geared to a revolving shaft so that it can be whirled both clockwise and counterclockwise to throw off excess lacquer. The excess material is caught by the sides of the container and drains back into the tank. After whirling the caps for 30 seconds in each direction at high speed, they are poured out on a coarse screen, and arranged in a single layer, preferably dome up, and then baked to quickly dry and harden the lacquer coating.

Conveyor Roller

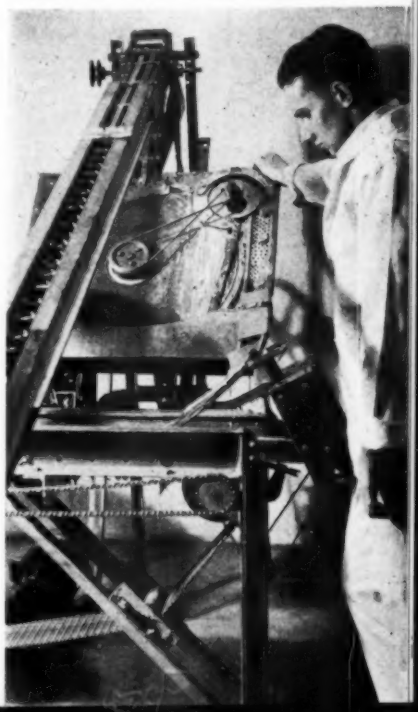
In this method of coating, the clean reshaped caps are fed, dome up, on a coarse screen conveyor, which travels downward at about a 45° angle and through a tank containing lacquer. As the caps approach the liquid level of the lacquer, they are held down by a large roller which revolves half immersed in the paint. This roller holds the caps on the screen conveyor and prevents their floating off while being coated with lacquer in the tank. After being coated, the caps are transferred from the screen conveyor to a screen belt that moves along under a bank of heatdrying lamps. The drying is aided by an electric fan, before they are emptied into the box.

Colors and Drying Temperatures of Bottle Cap Coatings

Colors of the enamels or lacquers used for refinishing bottle caps may be any that are desired. Green has better covering power than red. Gray is largely used. A brown color is used by a root beer manufacturer, since brown is most often used in the lithographic decoration on a root beer bottle cap.

The drying properties of enamels and lacquers may need to be modi-

Illustrating the conveyor roller method of painting bottle caps. Photo, courtesy of the Charles E. Hires Co.



Conveyor carrying painted bottle caps through a bank of infra-red drying lamps. Courtesy Chas. E. Hires Co.

fied by the manufacturer in accordance with the equipment facilities available for drying. Oven drying at a temperature of 250° F. for 20 to 30 minutes calls for slow-drying enamels or lacquers. Very fast drying enamels cannot be generally used, as there are too many difficulties with the clean-ups, work stoppages, etc. Manufacturers can furnish enamels of moderate drying properties which can be used either for baking or for lamp drying as desired.

It is impossible to recommend any particular process in preference to another, since often one process that is satisfactory in the hands of a skilled operator may be a failure in the hands of a novice, or one process or other cannot be operated because of lack of suitable equipment. Occasionally ingenuity is displayed in the use of makeshift equipment, such as the use of a small concrete mixer as a tumbling barrel, etc.

Manufacturers of enamels and lacquers have been helpful in furnishing practical information concerning the use of their materials especially designed for purposes herein described.

Reprinted from April 1943 issue of THE CROWN, *by courtesy of Author.*

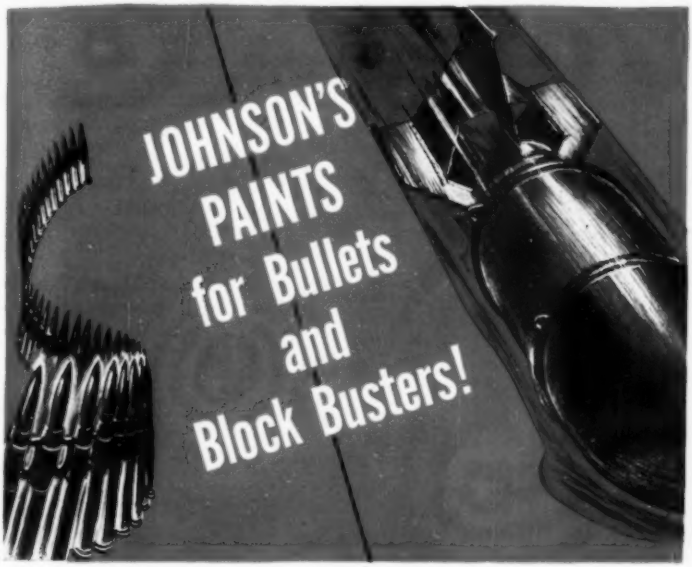
Spray Zinc Chromate Primer Thin

Author's Note: Since this magazine is designed to reach the key men in finishing departments in large war-production plants, I am sure the following information will be of interest to you and worthy of space. . . .

GOVERNMENT specification zinc chromate primer is being used in many war-production plants these days. While contacting these plants, where this type of material is being used, I am surprised to find how few men, who do the spraying of zinc chromate primer, know how the material should be applied.

For this material the Government specifications call for a thin mist coat, which would have the appearance of a greenish yellow semi-transparent coat. When applied in this manner the material is most efficient, but when it is put on heavy it presents the appearance of a full yellow coat, which should always be avoided if satisfactory results are to be obtained when the surfaces are recoated with lacquer.

When zinc chromate primer is properly applied the surfaces can be recoated with lusterless olive drab lacquer in less than ten minutes and, in many instances when



• War paint must be more than camouflage, must keep shells for strafing, bombs for blasting, mines, grenades, etc., in proper condition until needed on the firing line.

Ammunition finishes made by S. C. Johnson & Son fill such requirements. They meet Government specifications 3-162-B, grades I and II for lacquers and specifications 3-67-E, grade I and II for synthetic enamels. They are available in olive drab and all colors.

Johnson's Specification Paints equal the rigid tests prescribed for protective coatings on war materials. They have outperformed many similar materials manufactured for the same requirements.

Perhaps these finishes . . . now used on land, sea, and air equipment for our fighting forces . . . are just what you need. An inquiry will be promptly answered. Write today for Product Finish Folder F-265 N.

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PRODUCT FINISHES DIVISION
Department IF-63
Racine, Wis.

drying conditions are good, the primed areas can be recoated with lacquer, with satisfactory results, in less than five minutes.

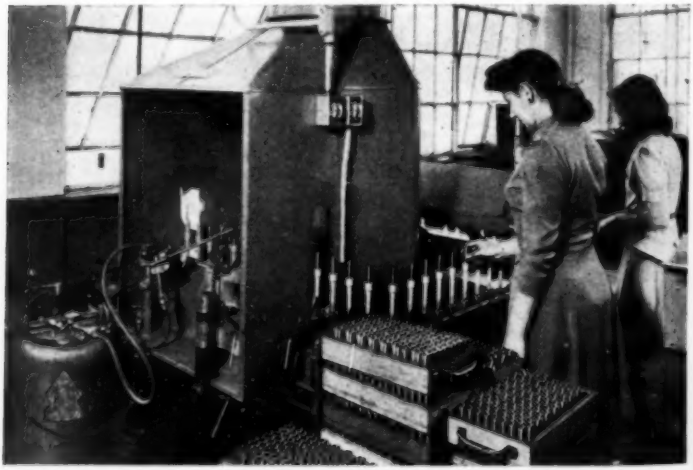
I have seen large Government gasoline trucks improperly coated with zinc chromate primer, or you might say unevenly coated, so the surfaces would have some places coated with the correct semi-transparent coat, but many other places would show the full yellow spots. When the truck is recoated with lusterless olive drab lacquer within ten minutes, which is according to schedule in most large plants, all spots that had the full yellow coat of zinc chromate primer will crack through the finishing coat of lacquer, making it necessary to refinish all such spots coated in this manner.

This faulty work makes it necessary to keep the truck in the building for further finishing, instead of rolling the truck out into the yard and making room for additional trucks to follow along the production line. As a result there are many delays in the production line. I am sure that this information will be of value to superintendents of the finishing departments in many war plants throughout the country.—L. W. FINLEY.

M. & W. Chief Chemist Made Factory Superintendent

Charles F. Rohleder, has been appointed factory superintendent of Maas & Waldstein Co., maker of industrial finishes, Newark, N. J.

Mr. Rohleder, who has held the position of Chief Chemist of Maas & Waldstein since 1937, was graduated from Cooper Union, New York, in 1926, with the degree of B.S. in chemistry. All of his professional life has been spent in the industrial finishing field. His experience includes research, production control, and supervision of production.



Here you see 20-mm. shells receiving their protective coating automatically. Production on a 72-spindle unit of this type is 1920 shells per hour, with one minute allowed for drying in infra-red drying unit, which is back of the spray booth. Photo., courtesy of Paasche Airbrush Co.

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A DeVilbiss Spray Gun helps paint a flying star—on the wing of a plane at Consolidated Aircraft Corporation.

Stenciling a loaded bomb with DeVilbiss Spray Guns at one of the Government arsenals.

Signals for the Axis

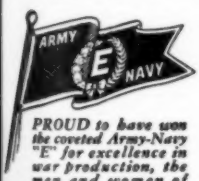
PAINTED WITH DEVILBISS GUNS!

These spray-painted signs forecast bigger clouds of warplanes and a heavier rain of bombs for our Axis enemies.

Painting stars on Allied planes and stenciling loaded bombs are only two of the ways DeVilbiss Spray Guns are helping to step up our air attacks. They also speed wing doping, fuselage painting, seam caulking, engine coating, and camouflaging, too.

DeVilbiss Spray Systems are aiding the production of almost all war materiel—from incendiaries to bombers for air raids, from grenades to tanks for land attacks, from engines to battleships for sea warfare.

Fighting fronts need more of *your* war product, too. So, check the rate of your finishing operations. Then let a DeVilbiss Engineer show you how it can be speeded up.



PROUD to have won the coveted Army-Navy "E" for excellence in war production, the men and women of DeVilbiss pledge to continue giving their all-out best—for Victory.

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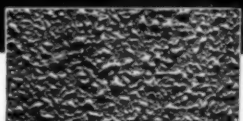
New EGYPTIAN Rough Finish for Metal Surfaces

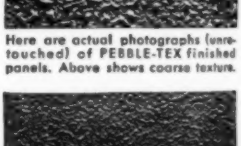
FACTS ABOUT PEBBLE-TEX

Photo U. S. Army Signal Corps

Formulated to provide a protection to such important war products as radio sets, searchlights, instrument panels, fire control and listening devices requiring a rough finish that will stand exposure and harsh treatment, PEBBLE-TEX is also wanted by manufacturers of essential civilian articles. Note these outstanding advantages: **1. Air-drying at 20 minutes. Saves time, manpower and oven space. 2. Simple to apply with pressure type spray gun. Varying degrees of texture obtainable from same mix by gun adjustment. 3. PEBBLE-TEX pattern in one coat. For full metal protection use over a primer. 4. Comes in a variety of colors.**



Here are actual photographs (unretouched) of PEBBLE-TEX finished panels. Above shows coarse texture.



This shows a finer texture. The size of the pattern is regulated by spray gun adjustment and application technique.

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"For your request for an article on what we are doing in war work, I am enclosing an article on, 'Non-Defense Finishing.' This article is self-explanatory and I hope it will be of interest to readers of I. F. Magazine."—

E. Hogstrom

Non-Defense Finishing

BY EDWIN HOGSTROM

MANY MANUFACTURERS, large and small, are confronted today with the problem of making their business pay. Some of these manufacturers either cannot get defense work to do, or their plants are not adaptable to defense work.

Before the war we made clocks and radios. When we could no longer sell these items, all of our machine shop and metal-working equipment (turret lathes, screw machines, milling machines, grinders, etc.) switched over to 100% war work. Our management did not quit because there was no defense work available for our assembly, finishing and cabinet departments.

What to do to keep these departments busy, and not be compelled to lay off the personnel from these departments, was our management's problem. The way our executives did this speaks well for their resourcefulness—and for the shrewdness of all other manufacturers in the same position as we were—and who were determined not to quit. As I have charge of all finishing, I will tell only about the accomplishments in this department.

Inasmuch as all metals, many woods and most chemicals, lacquers and varnishes are on priority, it was up to us to find something to make that would not require any of these materials, or only a small percentage of any of them.

A Non-Defense Number That Has Sold in Quantities

Item No. 1 is a kitchen stool to replace the metal stools, the manufacture of which has been stopped. This stool we make up 100% in our own factory, and it has been sold to only the two largest wholesale and retail firms in the country. The stool uses 98% non-defense materials.

The wood used is of a kind that is available in large quantities. We do our own veneering with a binding agent that has not been curtailed. Our finishing is done with substitute materials that were tried out long before we were forced to stop the regular lacquer finishing. These finishes were tested for durability and application and they

do not in any way slow up production. The drying time for these finishes is a little longer, but we adjusted our schedule to it.

Orders now on hand for this item, number in the thousands and will provide many months' production for our cabinet and assembly departments. Stock on hand will make and finish the future orders we have accepted.

Finishing the kitchen stools does not utilize all of our finishing facilities. We have one of the most modern finishing systems, with all finishing materials piped to the spray booths from central storage tanks. Since we had the extra finishing facilities available, we decided to take on some outside job work. This we did, and the following items represent some of the job work we do at present.

We Do Job Finishing Too

Item No. 2. This is a smoking stand with a nicely carved upright, a turned base and a top to hold an attractive glass tray. These stands are finished in walnut, mahogany, natural, pickled pine, maple and bamboo.

Item No. 3 consists of small mirror frames made of plaster, in a patriotic design, and finished in white or tan over which a burnt umber glaze is sprayed and then highlighted.

Item No. 4 includes a number of carved wood items most of which are finished natural, although some are in pickled pine and antique finishes. These consist of small items such as carved bears, ducks, elephants, giraffes, deer, fish, etc. None of these articles takes material from the war effort.

The other problem faced by us, and also by the entire country, is the manpower situation. With higher wages in war production plants, and the draft, we lost some of our best men, as did all civilian industry. However, at present, we have no help problem and do not anticipate any. We replaced the men leaving us with men of 50 or over, or boys. The boys were too restless and did not stay long. The older men, although not fast, still do a good job. Most of our work is light and does not require a great deal of muscle or strength to handle it. Experience is not essential—only the will to do a day's work for a day's pay. Most of these fellows would not be able to stand the grind of a war production plant, or the hours either. So, we take nothing away from the war effort; we hire men who would not be working in war work anyway, and we keep going.

Our company does not desire to make a lot of money with these items, but wants to be here in operation when the war is over, when private industry, we hope, can once again go ahead and produce the articles of necessity and comfort which make the United States the country with the highest standard of living and personal initiative in the world.

Decals Help Quicken Return of Drums

With metal curtailment threatening the nation's supply of steel containers, hundreds of industrial concerns have been quick to engage in a lively "return barrel" campaign. Many have enlisted the aid of decals as a means of insuring the return of their drums. Colorful, highly individual decals supplement other identification decals on the containers.

The new eye-catching sign is red, white and blue, urging prompt emptying of the drum and its return to the owner. It includes such wording as, "Keep this Drum Rolling. Save Steel for Defense." The Meyercord Co., Chicago, maker of the decals, reports an increasing demand for signs. They are weatherproof, oilproof, and withstand severe usage, and are said to have prevented misplacement and speeded the return of virtually thousands of containers.

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Announces

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Because of a shortage of Chinawood oil the use of standard wrinkle finishes has been prohibited by the Government, except for a few special applications.

M&W research has developed a complete line of wrinkle finishes that contain no Chinawood oil but closely resemble our standard Duart wrinkle finishes in all other respects.

They form hard, durable coatings; they cover rough metal surfaces effectively in a single coat; they are applied in regular wrinkle patterns by the same methods; and they are supplied in a full range of colors.

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Undercoats in Finish Systems for Furniture

BY ROLLIN H. WAMPLER

PART TWO

More About Lacquer Sealers; Other Undercoats

A WIDESPREAD fallacy in regard to lacquer sealers is the notion that high solid content insures good body and smoothness of the finish. The truth is that body and smoothness depend very little upon high solids or nonvolatile content of the sealer, although this has a vital bearing on the coverage. Coverage and nonvolatile content must always be examined in relation to viscosity.

The scientific definition of viscosity is hard for the layman to understand because it is difficult to visualize. Perhaps the idea is conveyed easiest by saying that molasses is viscous and water is not. It is general practice in the trade to say that molasses has a heavy body and that water has a light body. Do not confuse this use of "body" with "body on the work," which refers to gloss, depth, or luster of the completed finish.

Nitrocellulose in Lacquer Sealer; Its Effect on Viscosity

The nitrocellulose in a lacquer sealer is the ingredient that has most to do with the viscosity of the sealer. It is not the amount, but the kind that makes the difference. For example, a 15% solids solution of one type of nitrocellulose may have the same viscosity as a 5% solution of another type. You may have the same relative effect when resins, plasticizers, and sanding agents are added.

Offhand, you might think that the higher-solids sealer would give the better results. Certainly it would cost more. But actual tests will often reveal that the low-solids sealer gives better results, although coverage may be less. "Better results" here refers to the quality of the finish, and not the cost per case. Cost per case depends upon cost per gallon and coverage. Therefore high coverage does not necessarily mean low cost per case.

Solids Content of Sealer; More About Viscosity

The fact that a low-solids sealer may often give superior results is a paradox that requires careful explanation. Remember that sealer in no sense partakes of the nature of a filler. It seals, but will not fill up cracks and open pores. Also, a wet sealer film is likely to be absorbed by a porous or a wet filler, or by the wood, if it stays wet too long. Further, a sealer that is too thin in viscosity will "sink into" the wood. These facts are well known to experienced finishers.

Now what makes a good lacquer sealer, as far as sealing qualities go? Low solids (from 10% to 18%) promote rapid drying. The film stays wet only a few minutes, and

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that are past the "guinea pig" stage

You are definitely not *experimenting* when you use Murphy Protective Coatings on plywood, for they are backed by years of practical experience in meeting the special needs of a wide variety of plywood products.

Outstanding among these coatings is Murphy Moisture Repellent Sealer No. 30 — now being used for airplanes, gliders, army cabinets and cold storage fixtures, over-water kit containers, shower-stalls, signal corps operators' huts, and for numerous other products that require the utmost protection.

No. 30 has a unique affinity for wood, penetrating deeply into the pores. It therefore remains intact and protective even after the finishing coat deteriorates. Moreover, plywood treated with No. 30 remains plastic and "alive" because this sealer permits the wood to breathe. May be sprayed, dipped or brushed and is in every way suited to exacting production standards.

Write for leaflet on

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Moisture Repellent
SEALER
No. 30

Put your plywood finishing problems up to Murphy

MURPHY VARNISH COMPANY
NEWARK SAN FRANCISCO CHICAGO

little opportunity is afforded the wet, liquid film to be absorbed.

Viscosity is quite as important. If solids do not have to be too high, more high-viscosity nitrocellulose can be used. This means that as the solvents begin to leave, the viscosity of the wet film rapidly increases to a point where absorption does not take place, even though the film is still wet.

These are the reasons why the use of lacquer sealers of reasonable solids content at proper spraying viscosity (*A* to *C* on the Gardner-Holdt bubble viscometer) is usually found to be the best practice. This is not to infer that high-solids sealers cannot be used successfully. Their successful use requires that adjustments be made to avoid the undesirable effects of a film that stays wet longer, and the non-volatile base of which is thinner in viscosity. But in general, avoid the fallacy of believing that high solids in the sealer guarantees a good job. The 10% to 18% range of present-day lacquer sealers has been established by much experience to be good practice.

It should also be noted, in passing, that low-solids sealers have been observed in many cases to give better toughness than the higher-solids materials. There are many reasons why this may be so, but space limitations make it undesirable to go into the details of the reasons here.

Varnish Sealers Offer Interesting Possibilities

Varnish sealers are a recent development. They are made from especially formulated varnishes and sanding agents. Such sealers require overnight air-drying or force-drying two hours at 120 to 140° F., or about four hours at 110° F.

In these days of scarcity of lacquer products for civilian uses, varnish sealers offer the advantages of ready availability and conservation of critical materials for the war effort. Also, they cover or spread better than lacquer sealers. If loss of drying speed is not considered, varnish sealers are much more economical than lacquer sealers.

Actual experience with these products indicates that their use is good practice. If properly made, they seal well and produce a tough, durable finish. Their solids content runs about 30 to 35%, and their viscosity about *B* or *C*. What has been said previously in this article, in regard to the non-volatile content of lacquer sealers, does not hold for varnish sealers because they are a totally different type of material.

Manufacturers of furniture finishes are urging their customers to consider these products because they are readily available in reasonable quantities and are a good replacement for lacquer sealers. Their only major disadvantage is slowness of drying. Once the furniture manufacturer rearranges his finishing schedule to take care of this disadvantage he is usually surprised at the quality and economy of the finish a varnish sealer produces. Finishers who have not yet familiarized themselves with this product, are urged to do so at once, because of the war if for no other reason.

In using a varnish sealer, remember that the sanding agent in this product settles as in lacquer sealer, although slower, therefore handle it accordingly.

Shellac Wash Coats; Substitutes Being Used

Every finisher is familiar with pure white and orange shellac, and with substitute shellac. These products are on their way out for the duration of the war. Shellac gum

WHAT QUALITIES DO YOU REQUIRE IN PLYWOOD AIRCRAFT FINISHES?

Moisture resistance, low film weight, fast drying time, surface smoothness, dependability and faithful conformity to specification are essential to all Aircraft Finishes. But kind of wood, use of the plane and the finishing method of the plane manufacturer often creates a need for stronger emphasis on one or more qualities than on others.

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INDUSTRIAL RESEARCH DIV. OF WIPE-ON CORP., 105 HUDSON ST., NEW YORK

comes from India, and the resins used in substitute shellac originate in the Philippines and East Indies. Fortunately, their use in the furniture industry is not necessary because other materials can be used.

One great advantage of these products lies in the fact that their films are almost insoluble in the solvents used in varnishes and lacquers. This property is recognized in their widespread use as washcoating materials. Because of their insolubility in varnish solvents and oils they prevent the penetration into the wood of filler thinners and oils which would darken and stain the surface. Fortunately, substitute washcoats are available which serve the purpose.

Another place where shellac and shellac substitutes have been used to advantage is on furniture where the schedule does not permit the filler to dry adequately. These products do not swell the wet filler as badly as lacquer sealers.

Mixing Lacquers; Pigmented Primers

The use of mixing lacquers with shellac and substitute shellac, to promote rapid drying, smoothness, fast sanding, and to lessen penetration into end grain, is good practice. These mixing lacquers are especially formulated for this purpose. Just any lacquer will not serve.

So-called pigment primers were used years ago as a surfacer for top-coats on furniture. Modern varnish sealers bid fair to prevent their return as a result of the lacquer sealer scarcity.

What has been said before in discussing clear or translucent sealers applies with equal force to pigmented or opaque undercoats. Here, however, another factor must be considered. That is the porosity of the undercoat itself.

Undercoats for Enamels

Lacquer, varnish, or synthetic undercoats for enamels contain a high pigment volume to secure opacity, good building or filling effects, and satisfactory sanding to produce a smooth surface. If the undercoat contains too much pigment as a result of improper formulation or failure to stir the product well before using, brittleness and excessive porosity results. This excessive porosity means a loss of gloss and fullness in the final finish. In some cases the gloss may seem satisfactory at first, but it gradually dies away in a few months. This effect is sometimes called "shrinkage."

However, do not make the mistake of thinking that this is the sole cause of loss of gloss. Some enamels have the property of forming a surface haze after a few days, which is in no way related to the porosity of the undercoat. You can determine whether or not this is the case by applying the enamel to a piece of glass and noting the gloss retention.

Any enamel or undercoat that has a high pigment volume will dry rapidly, so that synthetic and even ordinary varnish undercoats can be sanded and recoated in a few hours. But if insufficient time for hard drying is allowed, and if the surface is recoated immediately, there is some likelihood of "striking in," which also causes loss of gloss in enamels.

In summary, let it be mentioned that this article is not meant to be as comprehensive as the title might imply. There are many aspects of undercoats, particularly as to their formulation, that have not been mentioned. The purpose has been to point out some good and bad practices in their use, with suf-

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Superseding M-485 b, June 8, 1942 and M-485 a, July 21, 1941

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Now, complete, up to the minute catalogue of U. S. Government Specification Finishes.

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3 IS YOUR MATERIAL HOLDING ITS SPECIFIED NON-SPECULAR GLOSS? ALAKA meets the specification non-specular gloss when manufactured and retains its non-specular gloss regardless of the time of storage before use.

4 ARE YOU HAVING LIFTING TROUBLE? ALAKA shows no tendency to lift, crack or peel from the surface over which it is applied.

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ficient explanation from the formulating standpoint to make the reasons clear. Also, some questions in the mind of the reader must go unanswered here because of space limitations. However, if all users of undercoats of every nature will avoid the pitfalls and misconceptions discussed, their finishing troubles will perhaps not be eliminated, but they will certainly be greatly reduced.

Packing Metal Products to Prevent Corrosion

ONE OF THE grave problems that has been confronting the government during the past year is the protection of metal products against corrosion. Vast quantities of materials have arrived at the "front" utterly worthless because corrosion has ruined the highly finished surfaces. A great deal of knowledge has been unearthed by representatives who have visited our world-wide battle-fronts, and many government agencies, like the Forest Products Laboratory, have been working to develop better methods of protection against corrosion.

To most manufacturers, the prevention of corrosion is still a great headache. The government is trying to correct this situation through Methods Schools and District Ordnance Meetings. Anyone who has attended any of the meetings in the Ordnance series is well acquainted with the great interest shown by manufacturers in the packing of metal products for safe delivery.

Packing engineers have been working in close cooperation with government agencies and private industry to develop wrapping materials for use in connection with the corrosion-prevention program.

Frolics in the Finishing Room—17

A FEW YEARS ago a fellow workman on the bench next to mine was very fond of chocolate drops, and most of the time he

would have some in his coat pocket. He kept his coat hanging near his work station. He noticed that some of the drops were disappearing from his coat pocket, but it would always happen when he was out of the room. He tried to catch the one doing it, but meeting with no success he decided to try another method.

He took several of the drops and, with a very sharp pen knife, cut the bottoms out of them and removed most of the cream centers. In their place he put cup grease and then carefully replaced the chocolate bases. He put some of these "booby trap" chocolates in his pocket and soon learned, by the actions of one of the workmen, where his chocolate drops had been going. This caused a lot of laughter, as the culprit was caught with a mouth full of cup grease.—H.

IN STEP WITH THE TIMES

Industrial Finishes

that make the most of available raw materials to give you greatest durability, together with attractive appearance and economy.

FOR APPLICATION BY ALL METHODS

JAMES B. DAY & CO., CHICAGO

I am submitting an article as you requested, in the interest of good finishing, and hope that it will be of value to readers of your very helpful magazine.

I hope that this is what you wanted. I have not sent in anything previously because I felt there are others who can put ideas on paper far better than I can, so I have left it to them to do so.

I have been a reader of this magazine for a long time, and the articles that appear from time to time are very interesting and helpful. I am sure that the same can be said for many more. Keep up the good work. I know it will be appreciated all along the line.—

Charles W. Neild

Finishing Problems I've Helped to Solve

BY CHARLES W. NEILD

IT HAS BEEN my good fortune to have visited finishing rooms in numerous plants all over the eastern and midwestern states, where finishing materials are used. Many of them are well equipped to handle and turn out work which is a credit to their organizations. Still there are some places that can be helped, in the way of improving their finish, by recommendations for the use of strictly modern equipment and up-to-date materials. After all, this is what is needed to get out the best there is in the way of a good looking finish on the products being manufactured.

I have found that the average finisher has an open mind and is always alert to get new ideas and suggestions in reference to what to use and how to go about getting the best out of it. I believe I have been instrumental in starting off many a finisher on his way to perfection in the art of finishing various kinds of projects, which range all the way from compacts to the largest of our machinery now being used in the wartime job of producing armament which is so necessary to win the war.

Countless problems come up in the day's work in any finishing room. Some of these problems are easily taken care of. Others assume large proportions, and most finishers welcome any assistance that can be offered. INDUSTRIAL FINISHING magazine goes a long way in filling this much needed want. Then there are the men who sell materials and equipment; and the service men. They are welcome in the plants because they are well informed and are eager to give every reasonable assistance to help the finisher solve his problems.

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It makes little difference whether lacquer, synthetics or varnish materials are used. Each of these materials has its peculiar characteristics and must be handled accordingly. Regardless of which concern has made or supplied a given material, there are limitations set up as to the handling of this material. It is up to those in charge of finishing to see that the instructions, which come with the material, are adherred to in order to get the best out of it. This not only gives the material a fair chance, but helps, in a large degree, to get results that will be the means to an end in keeping down costs and eliminating grief, which all finishers are trying their best to avoid.

Regarding the use and application of any given material, much can be said along these lines. I think that citing a few instances at this time will be of benefit in helping the finisher to be on his guard and see to it that it is up to him to apply the material in the way that is recommended.

Why Material Wouldn't Dry

For example, I was called to a distant city, in answer to a complaint that their material would not dry. The whole system was being held up on this account. Here is what I found! The finisher had poured off the top liquid from a can of material, and had stirred the remainder of the material and applied same to his work. Certainly it did not dry. He had forgotten to replace this top liquid and had thereby unbalanced the remainder of the material, which afterward gave him his grief. Had he followed the instructions given, this trouble would have been avoided. Needless to say, after we had the problem all straightened away, the finisher, being one who was of an open mind, profited by his mistake and no more was heard from him about the material being at fault.

Why Material Was Stringy

Another finisher complained that our last shipment was not the same as previous ones. He declared that it was stringy and did not spray well. In looking for the cause of his difficulty I found that it was all due to an error that occurred in the stock room where his materials were kept. In filling cans of thinner from the drums, to use in the finishing room, the man who attended to this work had put reducer in the can which should have had thinner. It was turned over to the finisher who, being busy, went ahead and used this reducer in his lacquer. This, in turn, caused the material to curdle and spray stringy. Then a service man was called in to get the trouble straightened out. After I showed the finisher his error, he was all apologies. This impressed him with the fact that one cannot be too careful when handling and mixing finishing materials.

Clean All Spray Guns Promptly

In too many finishing rooms there is considerable carelessness in keeping equipment clean, especially cans and measures that are used for mixing materials. In some cases this is due to the department being rushed with work. In other cases the facilities for cleaning containers are inadequate. It is a good idea to keep mixing containers, used for lacquer, separate from those that are used for synthetics, as it is well known that one material will not mix with the other. In an unguarded moment, use of the wrong container will cause trouble in the way of spoiled finishes and a slow-down of work in the department. *(To page 55)*

That's Why Paasche Self-Cleaning

Water Wash Booths

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Overspray is drawn against a smooth-flowing curtain of water and washed down into a settling tank. Remaining solids are precipitated from the air in the scientifically designed water wash expansion chamber. When the air is exhausted to the outside, it is clean and free of paint particles.

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The design of the Paasche Water Wash Booth is the result of many years' development work and close contact with requirements of finishing departments. These Booths are establishing outstanding records in the largest industries, for steady service with minimum maintenance. They are supplied in sizes and types for individual requirements. We will be glad to give you further information without obligation—write today for new literature.

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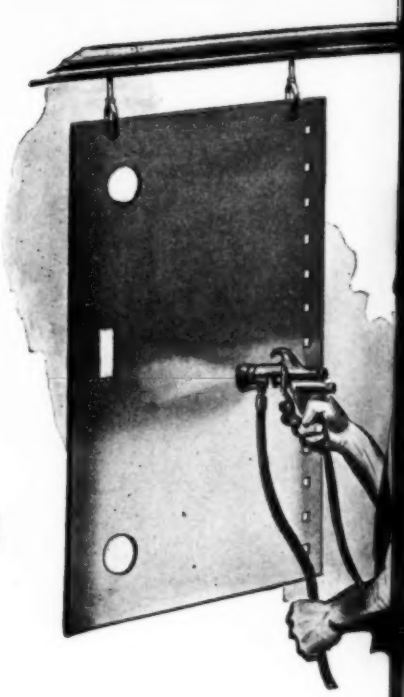
The Case of the Reformed Triggerman



OR HOW A DU PONT WAR SERVICE MAN
SLOWED DOWN AN OPERATION TO SPEED UP PRODUCTION

WHEN *new* wartime products are manufactured, this problem sometimes arises: how to finish them efficiently and economically . . . in *your* plant . . . with *your* men.

Consider the manufacturer who was filling a war order for flat metal panels for a prefabricated unit. When production started the finishing cost was 30 per cent above estimated requirements.

A Du Pont War Service Man was called in, and he was able to spot the difficulty in a hurry. It was due largely to improper spraying. The operator was whipping a wide-open gun back and forth across the panel. Material was wasted by overspraying at each side; uneven application caused excessive rejects and slowed down production.

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eful check on paint viscosity, pres- and adjustments) solved the prob- Production has speeded up because wer rejects. The amount and cost of rial now conform to estimates, and, ual importance . . . critical materials ined in the paint were saved.

haps similar economies can be e in *your* finishing department. Why all in a Du Pont War Service Man? e's one in your territory, and his e and recommendations are yours y for the asking.

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This brings up the question of equipment. In many finishing rooms you will find that the spray guns are in poor condition, due to material having dried over the nozzles. Much time is lost because of this very thing. When the work day ends there is a great hurry among employes to get away. Little if any attention is given to cleaning up tools. This is left for the next morning. I have often watched this belated cleaning operation. It is common to see someone with a wire or nail or the tang of a file, digging away at the port holes of his spray gun, trying to dislodge some obstruction that could easily have been removed by cleaning at the end of the previous day's work.

It only takes a minute or so to clean tools and equipment while the spray material is wet, but in the morning after solvents have evaporated and paints have become partially or entirely dry on tools and equipment, the better part of an hour may be spent in getting everything clean and in working order. In these times it is difficult, if not impossible to get new equipment, and it is equally as difficult to get repairs, therefore it is up to the men to see to it that they keep their equipment clean. Strict cleanliness pays in many ways. Anyone is able to get better work with equipment that is kept up to its best condition.

I know of a finisher who has, on the wall of his work room, a large board on which there are about two dozen nails. On these nails he has as many spray gun caps. He uses a cap until it gets too dirty to allow the material to come through. This cap is then replaced with a clean one, and so on until all of the caps are out of service. Then comes the cleaning operation. He stops and cleans the whole lot and then begins all over again.

It is easy to see that the man who has only one cap on his gun, and who takes a little care in cleaning it with a brush and some thinner or reducer every little while—this man is way ahead in his production results. He gets a better job and loses no time in getting his equipment in order again.

In summing up the whole situation, the finisher who takes care in seeing to it that the materials are used according to recommendations of the maker, and who keeps his equipment in good working order—he is in position to get out his work with little effort, and at the end of the day's run he can show an excellent record. And, isn't it a swell feeling to go home knowing that you have done a good job? You can be proud and satisfied with your work; no regrets; nothing to apologize for. I hope that the foregoing will be of help and inspiration to all who read it.

H. Behlen & Bro. Takes Over Schrell & Brock

H. Behlen & Bro., Inc., announces the acquisition of the firm of Schrell & Brock, well known suppliers of everything used in the drafting room. Schrell & Brock retain their original personnel, who continue under the direction of Mr. William Schrell.

In acquiring Schrell & Brock who since 1911 were leaders in drafting room materials used by the architects and engineers, together with their entire personnel, H. Behlen & Bro., Inc., is in an expert position to handle any business offered in this line, whether it be drawing paper, cloth or instruments. In fact the whole field is adequately covered by a personnel that has many years of engineers' experience. The senior F. V. Schrell is in complete charge of all office routine, and the entire division is under the personal supervision of Mr. Wm. Schrell, as technical director.

H. Behlen & Bro. Inc., 10 Christopher St., New York, N. Y., well known manufacturers of industrial finishes and protective coatings for over 50 years, are now in position to offer additional service to their many friends in industrial plants throughout the country with their Schrell & Brock line of drafting room supplies.

Lacquer Decals Replace Wood Veneers

BY H. W. CHESTER

THE USE of lacquer decals for making natural reproductions of real woods and veneers, used in the manufacture of wood furniture, has greatly increased during the past few months. There are several reasons for the increased use of decals. Fancy veneers are almost unobtainable, due to the fact that most of them were imported—and, of course, shipping difficulties, caused by the war, have been a factor in stopping the importation of most veneers for civilian production.

These wood grain decals have been vastly improved. When they are properly applied the average person cannot distinguish between them and real wood veneers.

The application of decals has been made more economical and simple by the development of a new type of cement used in applying them. This cement has just recently been put on the market and I am sure that it will, in time, replace the old type of cement, in most instances.

Formerly Used Only for Small Decorations

Decals were formerly used chiefly for small decorations and for inlay, banding, etc., but now several furniture manufacturers are covering entire tops and fronts with decals, where formerly they used only real wood veneers.

In the application of decals there are two methods. One method is to apply two coats of lacquer or lacquer sealer to the surface to be covered. You allow this to dry and apply the decal, first dipping it into a solution of 50% cement and 50% water. Then place it on the surface to be covered, being careful to get it in exactly the proper position. Smooth it out by pressing it down with a rubber squeegee or rubber roller.

Peel off the top paper by starting at one corner and then stripping it off. The remaining tissue paper must be washed off promptly, using a sponge moistened with water. Wipe the lacquer film with a wet sponge and then use a dry chamois skin to clean off the dextrine.

New Method of Decal Application

The new and greatly improved method of applying decals is to use the new type cement. By using this method it isn't necessary to coat the wood with lacquer. Decals can be applied directly to the wood. Here is the new method:

1) Apply a thin coat of ordinary glue size. This can be put on with either a spray or brush, and should be done when the work leaves the machining department and just before the unassembled furniture goes to the sanding and

H. BEHLEN & BRO., Inc.

10-12 CHRISTOPHER STREET **NEW YORK CITY**

"Fruitwood"
"Old World"
"Mild Wood"
"Blonde"
"Wheat"

WOOD BLEACHES
Color Desolvent
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EFFECTIVE BLEACHING SOLUTION
THAT REMOVES THE WILD COLOR IN RAW WOOD
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The Modern
French Polish
Revives a
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QUALARENU
No. 1 and No. 2

Renovates old
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THE FINISH TO YOUR LACQUER PROBLEMS

SCHRELL & BROCK

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EVERYTHING FOR
THE DRAFTING ROOM

polishing room. Allow the glue size to dry thoroughly; then polish the wood with fine sandpaper.

2) Dip the decal in new type cement, using 60% cement and 40% water. Place this carefully on the surface to be covered, putting the lacquer side of the decal to the wood. Press it down firmly, using a rubber squeegee or rubber roller. If large flat surfaces are to be covered, the decals can be pressed down by running the decaled pieces through a rubber-roller wringer similar to a clothes wringer. The wringer can be operated with a small electric motor or by a hand crank. This method of operation speeds up the application of decals to flat surfaces.

Removing Paper Backing; Treating Decal Film

After the decal is pressed down firmly, its top paper is removed by starting at one corner and stripping it off. The remaining tissue paper is then carefully rubbed with a wet sponge and removed.

The lacquer film is then wiped with a wet sponge and finally dried with a chamois skin to remove dextrine glue which, if allowed to remain on the decals, would cause the finish coats of lacquer to check. The decals are then allowed to dry for two hours. The furniture can then be assembled in the cabinet assembly department and finished in the regular way.

Where it is impractical, impossible or undesirable to apply decals to the unassembled furniture, they can be put on after the wood surfaces have been coated with lacquer sealer. Then the decals can be coated with the usual top coat of lacquer or varnish. However, where large surfaces, such as tops and fronts or even top drawer fronts, are to be covered with decals, it is much easier and more economical to put on the decals before the pieces are assembled; and the new type of cement should be used, as this eliminates the two coats of lacquer which are necessary as a foundation when the old type of decal cement is used.

If care and skill are exercised, a first class job of decal application will be obtained, and we can still have furniture that resembles the fancy and highly figured veneered furniture of pre-war times.

Supporting What Has Been Sprayed

THE PROBLEM of finding a way to support freshly sprayed units while they are drying, to keep them apart so that one does not mar the other, is always present in the finishing department. Often we see used, some form of separating device that will maintain only pin-point contact with the work. Another idea that can be used to a considerably greater extent than is realized, is to make use of drilled holes. In the case of freshly sprayed bed ends, you have a "natural"; the caster sockets can be set right down over steel pins positioned in a pair of runners.

Many other items have holes by means of which articles can be suspended from hangers, or drilled holes by means of which they may be supported on the floor or on racks, vertically. And there are a few cases where it will even pay to provide holes for this purpose, if they will not show in the finished job. Sometimes temporary pegs can be placed in the holes to hold adjoining pieces apart. Really this calls for ingenuity to quickly solve some of these problems.—L. C.

ANY GRAIN YOU DESIRE ON ANY KIND OF WOOD

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LACQUER "WOOD GRAIN" VENEER

★ *Save Time . . . Labor . . . Materials!*
★ *Hundreds of Lustrous Wood Grain Patterns!*
★ *For All-Over Finishing . . . Banding . . . Trim!*
★ *Available in Lacquer-Sprayed Flexible Sheets!*
★ *Machine or Manual Application!*

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The amazing utility of Sans-Arb is asserting itself month by month. New uses . . . new application methods . . . are becoming increasingly important to wood finishing. Sans-Arb does not necessarily require critical materials to apply. Each sheet represents many man-hours of FILLING, STAINING, SEALING, RUBBING and LACQUERING. Sans-Arb can be applied to wood, metal, composition, and farbic surfaces . . . even GLASS. Stocks are available for immediate delivery. Write Dept. 146.

THE MEYERCORD CO.
5323 WEST LAKE STREET • CHICAGO, ILLINOIS

Materials Supplies Equipment

Wrinkle Finish Without China Wood Oil

A new line of wrinkle finishes, containing no China wood oil, has been developed by Maas & Waldstein Co., maker of industrial finishes, Newark, New Jersey.

These new "Victory" finishes closely resemble the standard wrinkle finishes, the manufacture of which is now restricted by government order for a few applications and soon will be entirely prohibited, because of the China wood oil shortage. According to the manufacturer, the new finishes form hard, durable coatings, cover rough metal surfaces effectively in a single coat, and are applied in regular wrinkle patterns by the same methods. They are obtainable in a full range of colors and make this once widely-used type of finishes again generally available.

"Infra-Red Principle" Gas Burners

Burdett "Infra-Red Principle" gas burners are proving valuable in connection with paint drying and other operations that require heat. The "Infra-Red" gas burner is a scientific achievement which generates and fully utilizes infra-red rays to accomplish its higher penetrating and revolutionary results.

At its usual operating temperature of 2300° F., it acts very nearly like an ideal black-body radiator. About 99% of its total radiation is in the form of efficient infra-red rays. It is largely this infra-red radiation which is so readily absorbed by the material to which the heat is applied, while at the same time virtually no energy is dissipated in traveling from the burner to the product. The energy is really heat (molecular motion) only at the place where it originates and at the place where it is received or absorbed. In between, it is radiation—a stream of energy—which goes on without loss, without hinderance.

Heat rays are radiated at a 45° angle from the burner with perfect distribution—void of focal or hot spots—providing an even temperature across the entire expanse of radiation.

Burdett burners burn any commercially available gas from manufactured to hydro-carbon gas, with as high as 40% economy in fuel consumption, as compared with other types of burners.

Camouflage Paint

A dark green paint that, to enemy camera eyes, is not dark green at all is now being made by the Du Pont Co., Wilmington, Del.

This new camouflage finish reflects the infra-red rays that, along with ultra-violet, represent the unseen three-fifths of sunlight. It shows up light instead of dark in aerial infra-red photographs. In contrast, ordinary green paints appear dark in aerial photographs, revealing details to the enemy.

Detection of camouflage depends chiefly on visual observation and lens work aloft. The military value of infra-red photography is based on the fact that common objects reflect visible light and infra-red rays in a quite different manner.

Most green vegetation, for example, reflects infra-red light. A military target blended into the landscape by the artful use of orthodox green paint would not escape detection by the in-

It's our job to help you solve your finishing problems, and *we're no farther away than your telephone.* SO—if you're having difficulty with Government specifications, reach for the telephone, call Cedar 8100 (Pittsburgh, Pa.) and ask for the Research Laboratory. Reverse the charges. Tell us your difficulty, whether it's with formulas or method of application. Chances are we're familiar with your problem and can quickly give you the solution. If not, our prescription laboratory is at your service. We are cooperating closely with Government purchasing agencies and know exactly what finishes they want and how to get them by any method of application. Remember—we're "tough job headquarters," and our laboratory technicians are always available for consultation or research.

WATSON-STANDARD CO.

Manufacturers of
PAINTS · VARNISHES · INDUSTRIAL
FINISHES AND LITHOGRAPH COATINGS

FACTORY AND GENERAL OFFICES:
PITTSBURGH, PA. · WAREHOUSES:
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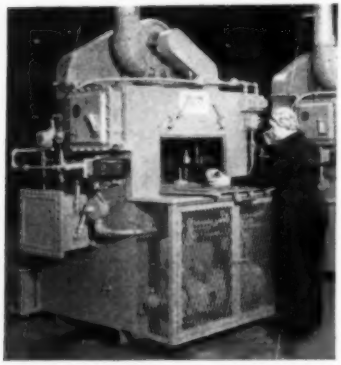
TOUGH JOB HEADQUARTERS
℞ **Prescription Finishes**
Give us your metal coating problem. We guarantee you an answer based on your conditions, and not just a standardized formula.

fra-red aerial camera, because the painted surfaces would stand out in marked contrast to the foliage—black against white in the photograph.

Now, however, the camoufleur is one jump ahead of the recently developed infra-red technique. He may use green paints that not only visibly match surrounding natural greens, but also equal their infra-red reflectance powers and accordingly match in the infra-red photograph as well. Other colors (olive and field drab, loam black, earth red, brown and yellow) are also possible in the range of paints that are more than they appear to be to the human eye.

Metal Parts Washing Machine

The "Rotospray" washing machine, manufactured by the Industrial Washing Machine Corp., New Brunswick, N.J., consists of a rotating mesh turntable 2-ft. or larger in diameter, housing, pump, motor and spray system. The parts to be cleaned are placed upon the mesh turntable, the door is closed and a quick-opening valve turned which allows the cleansing solution to spray the work. As the parts are sprayed a gearhead motor rotates the turntable in order to expose all sides of the work to the spray action, which is directed by specially machined nozzles from the top, sides and bottom.



Any cleaning detergent can be used.

After the work has been cleaned, it can be rinsed with fresh water if so desired. This fresh water does not drain into the solution tank, but passes directly to the sewer by means of a tilting drain plate which is coupled to the fresh water valve handle. The chief merits of this machine are:

1) Only one inexperienced operator is needed.

2) Easily cleaned work can be cleaned in a few minutes, while a more difficult job can be left in the cabinet 15 or 20 minutes.

3) Machine occupies only 6x5-ft. of space.

4) Any of the cleaning detergents now on the market can be used in the machine.

5) It can be operated by women.

The machine pictured here is intended for use with kerosene; hence the explosion-proof switches and wiring and built-in C02 fire protection system.

Self-Stik Stencils for Letters, Numbers, Insignia

Ready made stencils, adhesive-coated on one side, have been developed for fast production service by the Mystik Division of Chicago Show Printing Co., 2635 N. Kildare Ave., Chicago, Ill. Scientifically manufactured to effectively perform a clean-cut stenciling operation, they are fabricated complete, ready for immediate use.

Mystik stencils are made up according to each manufacturer's specifications. Their simple application takes but a few minutes, and after the sprayed paint has set, the stencil is instantly removable, without the slightest trace of residue. These self-stik stencils produce clean, sharp edges for any sprayed or brushed lettering, designs or insignia. The adhesive will not harm even the finest piano finishes.

Mystik is impregnated with rubber

"RINKOLIN"

a new wrinkle finish

made from LINSEED OIL

What RINKOLIN Users Say:

*"A" writes: "RINKOLIN is fool proof; gives a uniform texture with excellent edges no matter under what conditions it is sprayed."

*"B" writes: "Our sprayers consider RINKOLIN the most fool proof wrinkle that we have ever used. In fact, even the recent trainees find it an easy matter to spray wrinkle when they are using RINKOLIN."

*"C" writes: "We wish to express our appreciation of your RINKOLIN finish. Its qualities, in our opinion, exceed any previous finish of the same type."

*"D" writes: "We wish to express to you our full acceptance of RINKOLIN in meeting every standard of quality claimed for it. It has done by far the best job for us of any wrinkle finish used in the past."

*"E" writes: "Since the shortage of China wood oil it has been a problem to obtain the material to produce the proper finish for Government work. The Standard Varnish Works solved this problem by producing RINKOLIN, the best wrinkle ever made. We highly recommend this material to all users of fine finishes."

*"F" writes: "We find RINKOLIN entirely satisfactory and are very pleased with the appearance and uniformity of the finish, which we understand contains no tung oil or Oiticica."

WIRE, PHONE OR WRITE!

*Name of firm on request.

SINCE 1870

STANDARD VARNISH WORKS

2600 Richmond Terrace
Staten Island, New York

2600 Federal Street
Chicago, Illinois

as an integral part of its composition. It adheres by a combination of vacuum and molecular attraction. The vacu-adhesive side consists of 98% rubber. It can be stored away indefinitely and will not deteriorate with age.

According to the company's literature, Mystik self-stik stencils enjoy an unparalleled acceptance with many leading manufacturers. Their simple application and labor-saving qualities expedite spraying or brush painting of lettering, designs or insignia, and "step-up" production . . . They constitute the quickest and most improved method of spraying serial numbers, insignias, special designs, lettering, etc., on planes, tanks, trucks, motor cars, railroad cars and general ordnance parts.

For concerns that insist upon making their own stencils the company offers self-stik Mystik blank material in sheets or rolls up to 39-in. wide. The company also offers Self-Stik Mystik masking tape for use in connection with two-color painting jobs.

Ordnance Packing List Envelope Protectors

A new asphalt-treated fibre protector for packing list envelopes, recently developed by the Dennison Mfg. Co., Framingham, Mass., to be used in place of critical metal protectors, has been approved by the Office of the Chief of Ordnance in Washington. The new protector is embossed to fit over bulky packing lists or instruction booklets, and prevents tearing and ripping due to rough handling and damage from adverse weather conditions.

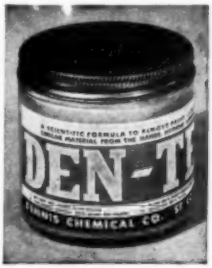
The Dennison protector covers the envelope completely. Its outside dimensions are 5¾x7-in. with raised portions 4¾x6-in. The raised portion accommodates the Dennison stock size waterproof packing list envelope and can also be used for smaller envelopes.

Intensified interest in packaging methods makes the Dennison waterproof envelope protector, designed to protect packing lists on ordnance cases from harmful effects of weather and rough handling, a very timely development. It is the officially approved fibre protector to take the place of protectors made of critical metals.

Every concern is required to use packing list envelopes for lists or bills of lading.

Skin Cream

Den-tex is a new compound for removing lacquer, dopes and paints from the hands without the use of explosive solvents. This new cleansing compound solves the problem of safe and thorough removal from the hands of the most tenacious and resistant ma-

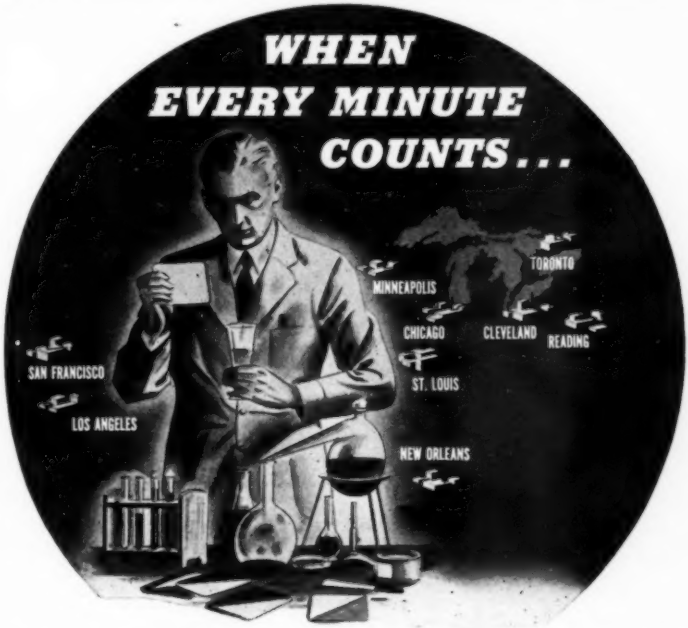


terial such as lacquers, airplane dopes, enamels, varnish, resin solutions, synthetic adhesives, etc.

To use Den-tex, it is merely worked into paint or lacquer on hands which then readily rinses off with water, leaving the pores open and clean and the skin soft. Complete information can be obtained from the manufacturer—Dennis Chemical Co., 2701 Papin, St. Louis, Mo.

Carbon Filament Lamps for Infra-Red Ray Process

The North American Electric Lamp Co., 1030 Tyler St., (6), St. Louis, Mo., announces a complete line (in accordance with WPB limitations) of Nalco carbon filament lamps for infra-



Glidden Technical Men Will See You Through!

Now, when war demands are growing greater by the hour, minutes lost on the finishing line may cause irreparable fighting losses. So, guard against these delays.

Glidden Wartime Technical Service was developed to specialize in solving finishing problems that came about as a result of the war—and it's ready to serve you now.

You can get this Glidden Service from any one of eight plants. Each has an engineering staff of industrial finishing experts, a complete research laboratory, modern production facilities and broad experience with the new, non-critical painting materials.

Don't let finishing problems throttle your war output. Now, when every minute counts, ask a Glidden man to help you step up the speed of your finishing line.

THE GLIDDEN COMPANY • National Headquarters, Cleveland, Ohio
Factories or Branches in Principal Cities

GLIDDEN
Everywhere on Everything

TIME TESTED
GLIDDEN PRODUCTS CARRY THIS FAMOUS MARK OF QUALITY

red ray drying, baking and dehydrating. It includes the inside-silvered self-reflector type and the bull's-eye silver type for diffusion and concentration of the ray. Nalco lamps are the carbon filament type, which the manufacturer claims yield a greater efficiency in the desirable infra-red ray band with a minimum of visible light. Sturdy construction over all, plus the ruggedness of the carbon filament make for longer life and greater economy in operation. Bulletin 78 gives additional information.

Effective Skin Protection For Finishers

West Protective Cream No. 33 was especially designed in the West laboratories and has proved to be highly effective in hundreds of plants, in help-

ing to protect the skin of workers who handle paints, lacquers, thinners, enamels, kerosene, gasoline and other industrial finishes. This cream leaves a thin film of a resin or wax on the skin and thus prevents the irritant from touching the skin.

West, one of the world's largest organizations of its kind, is devoted to helping industry protect its workers against virtually every kind of occupational disease. Write for a free sample quantity of West Protective Cream No. 33, and literature on the prevention of Dermatitis, to West Disinfecting Co., 42-16 West St., Long Island City, N.Y.

Black Chemical Finishes for Metal

Alrose Chemical Co., Providence, R. I., has developed chemical black finishes for five different metals as follows:

Oxidine B is for brass and copper.
Oxidine Z is for zinc.
Oxidine CI is for cast iron.
Jetal is for steel.

The proper salts are added to water and the solution is brought up to a high temperature. Then the cleaned parts or surfaces to be finished black are immersed in this hot solution.

Portable Degreasers

A recent addition to the line of portable degreasing equipment offered by Phillips Mfg. Co., 3421 Touhy Ave., Chicago, Ill., is a degreasing unit that includes a pre-dip wash, vapor rinse and drying in an open-top manually-operated portable degreasing unit. The Phillips Mfg. Co. devised this small portable double-dip machine for use by manufacturers of instruments, radios, and similar products, where numerous small metal parts must be cleaned.

The pre-dip wash consists of a kerosene-solvent solution, to which is added a very potent wetting agent. This wetting agent has the quality of thoroughly wetting down the oils, greases and waxes, and emulsifying them or saponifying them sufficiently to permit the kerosene-solvent solution to thoroughly flush them off the parts before they are placed in the vapor compartment. In the vapor compartment the parts are rinsed somewhat during the condensation period; this assures dry parts after their removal from the degreaser.

The Phillips Mfg. Co. also offers an

Let's Contact Berry Brothers

Calling in Berry Brothers is like adding a paint research laboratory to your own finishing department. Our research service will assist you in developing the most efficient finishing materials and methods to meet your individual needs. ¶ We, at Berry Brothers, recognize the importance of working closely with our customers. We accept the responsibility of recommending the most suitable finishing materials, the most efficient finishing room equipment, and the most satisfactory methods of application. ¶ We gladly accept the responsibility not only for original recommendations but for a continuing study, to maintain or improve the quality of finish used on your product. ¶ We invite you to investigate this complete, well-rounded paint service, in its relation to your present needs or to your post-war plans.

BERRY BROTHERS

Quality Finishes Since 1858

INDUSTRIAL VARNISHES • ENAMELS • LACQUERS

DETROIT, MICHIGAN • WALKERVILLE, ONTARIO

JERSEY CITY • BOSTON • CINCINNATI • CHICAGO • ST. LOUIS

instrument degreaser which, in addition to the wash bath, incorporates a filtering device that removes very minute particles of lint, dust and dirt, assuring a change of washing solvent each minute in the washing bath, a drying in the vapor section, and then immersion into an oil bath for coating the delicate instrument parts.

These later models come in two sizes, one for machine shop use, and one for assembly plant use. The smaller units can be wheeled into the assembly line between operators sitting at benches, or can be placed at the end of a group bench, for use by several operators on instrument assembly. The larger unit is placed in machine shop aisles, adjacent to processing machinery or in inspection centers, where the parts have to be thoroughly cleaned before they are gauged or miked, and then protected against handling during the remaining operations.

Letters from I. F. Readers

(Continued from page 8)

and that is how all manufacturers have "the exact finish for the job." Over the water in England we have the same sales talk, but somehow it doesn't always work.

In America, have you really got the cellulose lacquer taped? If so, why does one advertiser claim that French polish is being used more and more every day? I am asking this question, as I was exceptionally interested in the article by H. B. Young, Vice-President of The Stille-Young Corp., on "Shellac Versus Lacquer Sealer" (Sept. 1941, issue, page 80).

I would like to give my views, from an English furniture trades angle. Technically, Mr. Young is certainly correct and he has explained and hit upon all the snags, and yet I am sorry to say that my experience with all foremen polishers, in most of the large factories in England, was that they would use the shellac spray polish in preference to lacquer sealer. Don't ask me why. Perhaps it is as your Mr. Ford once said of one of his old staff: "I dare say the men on the job know more than we do."

But there it is. That was my experience. And, incidentally, I really preferred to push lacquers, as they were more expensive, so my views too are impartial.

In conclusion, I should like to say how great I consider the effort being made by all America in this great struggle. In the end, our joint production will bring Victory, and then once again all lacquer representatives can cash in on what should be a very good market. Good hunting, anyway.

P. S. Do you know any manufacturer of burnishing machines who might be interested in an English market?—C. LOPTUS, ISLAND OF MALTA.

"No-Drip" Coating Prevents Condensation Drip

Your New York office suggests that we contact you for information on "MO drip" plastic cork coating. We received an inquiry on this and have, as yet, been unable to locate the manufacturer.—Plastics World.

The name is "No-Drip," and it is a product of J. W. Mortell Co., Kankakee, Ill.—ED.

Reclaiming Wasted Spray

In April issue, pages 4 and 7, we notice a letter by a Mr. Z. Mezzetti regarding the reclaiming of overspray paints from water-wash spray booths. We are greatly interested in this idea and would appreciate receiving additional information.—The Garland Co. (Paints, Varnishes, Enamels).

We are sending you Mr. Mezzetti's address so you can write him.—ED.

Mist Coating Without Spraying

We would like to know of a process of coating articles with a fine mist of enamel. We understand this has been done by other means than the regular high-pressure spray method. If there is any record of this process, we would like some information regarding the procedure to set up the necessary mechanical equipment. (We manufacture, apply and fuse ceramic colors into the surfaces of flat glass, by means of controlled heat.)—T.

Will some reader please give us information about this?—ED.

Substitute for Shellac

In the April issue of INDUSTRIAL FINISHING, on pages 95 and 96 we note the article on "Substitute Materials for Civilian Goods" by H. W. Chester. We are interested in receiving a sub-

PROTECTION by CONCEALMENT

Is an Outstanding Accomplishment of Wartime Finishes

A single plane, improperly camouflaged, may be a dead give-away to a strategic Allied Air Base. To help avoid such discovery, planes and war materiel are camouflaged with Infra Red Finishes which make them less visible not only to the eye, but also on camera film of every type. These finishes incorporate the Infra Red qualities of landscape and thus blend military equipment and natural surroundings together—helping to conceal them from enemy observers.

Lowe Brothers has been closely associated with the development and supply of Infra Red enamels, dopes and lacquers for camouflage use by our Armed Forces on planes, tanks, guns, trucks and other offensive weapons.

Our intimate knowledge of camouflage paints or other U.S. Government Specification Finishes is at the disposal of accredited contractors or sub contractors producing materials for our Armed Forces. For application or other data—or for advice on any industrial finishing problem, write

INDUSTRIAL SALES
THE LOWE BROTHERS CO.
DAYTON, OHIO

Lowe Brothers

WARTIME FINISHES *for Industry*

IN ACCORDANCE WITH U.S. GOVERNMENT SPECIFICATIONS

stitute to replace white shellac for wash coating. We shall be pleased to receive a trial sample.—E. Furn. Co.

Mr. Chester has given us the names of four manufacturers whose products he has tried, or products with which he is familiar. The companies advertise in INDUSTRIAL FINISHING. In a letter we are giving you their names. —ED.

Removing Paint Beads From Dipped Work

Will you kindly supply us with a copy of the reprint, "Removes Paint Beads From Dipped Work Electrically", which appeared in your December 1940 issue of INDUSTRIAL FINISHING Magazine?—S. Packing Corp.

Kindly send the writer 25 copies of a reprint from December 1940 issue of INDUSTRIAL FINISHING Magazine entitled, "Removes Paint Beads From Dipped Work Electrically". If there is a charge for same, please bill us.—D. M. & Co. (Paint Mfr.)

Reprints are being sent you by Harold Ransburg, inventor and manufacturer of the equipment for removing paint beads from dipped work. His business address is 1234 Barth Ave., Indianapolis, Ind.—ED.

Varsol; Sanding Liquid

On page 86 of February 1943 issue of INDUSTRIAL FINISHING, there is an article of interest to us explaining that a product known as "Varsol" is used as a lubricant in the course of wet sanding, instead of water. We would like to know what this product is and where it can be obtained, etc. —R. Casket Co.

"Varsol" is a product of Standard Oil Co. of N. J., whose address is New York, N. Y.—ED.

Water-Wash Spray Booth

In the April issue of INDUSTRIAL FINISHING, on page 64, you have an article on a new type of water-wash spray booth. We would like very much for the manufacturer to send us additional literature on this type of spray booth.—G. F. Co. (Lighting Equipment.)

The manufacturer's name and address are given at the end of the article. We are writing the company for you.—ED.

Grease Solvent Wanted

On page 74 of April issue of INDUSTRIAL FINISHING, you have an article about a new grease solvent ("Carbon Met. Replaces Carbon Tet."). We would like to know more about this solvent. Will you kindly contact the manufacturer and have them furnish us additional information?—E. G. Co. (Designers, Engineers, Mfrs.)

Information and service supplied.—ED.

Who Salvages Something From Paint Sludge?

Do you have a list of concerns who are in a position to salvage resins and plasticizers from paint sludge? We are spraying a large volume of urea and alkyd resin enamel, and have accumulated a considerable quantity of this sludge from our water-wash spray booths. We are constantly accumulating this sludge and would like to contact some one as soon as possible, preferably some one in this vicinity (St. Louis, Mo.).—F. Mfg. Co.

We are sending you a list of several concerns who, we are told, have facilities for reclaiming usable materials from paint sludge.—ED.

Non-Shrinking Filler

Can you recommend a non-shrinking filler for use in filling walnut wood under a clear spray lacquer film? We have been using a paste filler which is sanded off after drying, but the job is far from satisfactory and the wood is not fully filled.—B. H. Co.

Hot Lacquer Trouble

We are writing to inquire whether you have received any reports of experience with the use of hot "dope" or lacquers. The purpose is to obtain a thicker sprayed coat, with less thinner consumption on fabric surfaces. The lacquer must penetrate the fabric to coat all fibers and also give a shrinkage and resulting tension. In some trials, unsatisfactory results have been reported because bubbles formed, and the coating was porous.

Possibly you have received experience from some users of hot lacquers for such work, which might disclose the causes and remedies for the common difficulties. Any information which you have, or any probable source of information, will be much appreciated.—F. M. L.

Has some reader any suggestions to offer in reply to the above?—ED.

"Recognition"
Personal service to insure meeting production schedules.
Up-to-date information on specifications.
YARNALL laboratories keep in close touch with the armed forces and government bureaus so that you can get immediate information and service on constantly changing specifications.
Many large manufacturers of war materials are now using Yarnall facilities and beating production schedules.
Yarnall laboratories are working 100% on war coatings. Let them work for you.
YARNALL PAINT CO.
Industrial Division
PHILADELPHIA . . . . PENNSYLVANIA

Questions and Answers

Heat-Indicating Paint

In the November 6, 1941 edition of the English magazine, "Engineering" (Page 416), mention is made of a heat-indicating paint having the trade name of "Thermindex" in this country, we would that there is a similar product made in this country called Lead Mercuric Iodate or Iodide.

Would you please forward us information as to the manufacturer, his address, quantities in which it may be bought, and the temperature ranges of this paint? If you have any information in reference to the sale of "Thermindex" in this country, we woud also appreciate your giving us the name of the agency handling that product.—C. A. MFG. Co.

I do not at this moment recall "Thermindex", but I shall later try to find some reference to it. However, I believe that mercuric iodide may be a similar material.

Certain metallic iodides are temperature-sensitive for very low temperatures, as for instance to detect overheating of bearings. If these would meet your needs, such paints may be "home made" by mulling together: 1) one part cuprous iodide and two parts mercuric iodide, or 2) five parts of silver iodide and one part of mercuric iodide. For a vehicle or binder, use a non-acid spirit varnish such as dammar cut in petroleum spirits.

When applied to a surface, the first formula remains bright red up to 130° F. As the temperature rises the color changes through red-maroon, chocolate, to almost black up to 212° F. It reverses to its former color upon cooling. The second formula similarly changes from a sulfur yellow to brilliant red.

There are also various hydrated hexamethylene tetramine derivatives of cobalt and nickel salts that show well-defined color changes at specified temperatures.

For temperature ranges from 200° to 338° F., there are the Sure-Temp heat-indicating papers. These sensitized papers were developed primarily for the laundry and dry-cleaning industries, to indicate definite temperatures and for locating "hot spots". The papers are put up in sheets; also in rolls 2-in. wide by 500-ft. long, priced at about $5.00 per single roll. Standard temperature ratings are 306°, 314°, 320°, 328° and 338° F. Should you care for them, I suggest that you contact Nashua (New Hampshire) Gummed & Coated Paper Co., originators and manufacturers of "Sure-Temp". State your conditions and temperature range, and get the supplier's specific recommendations.

Finally, I would recommend first consideration of a quite revolutionary advance in metallurgical technique for signaling temperatures in all metal-working operations requiring careful and accurate temperature control. This new device is Tempil°, a product of the Tempil° Corp., 132 W. 22nd St., New

TESTOR CHEMICAL CO. TESTORS ROCKFORD, ILL., U.S.A.

CONTROL LABORATORY DATA SHEET

CAMOUFLAGE ENAMEL, QUICK DRYING
PRODUCT

14109A Army Air Force SPECIFICATION NO.	412 BATCH NO.

APPEARANCE: Smooth, homogeneous, dries to dull finish - Color, Olive Drab #41.

TOXICITY: No toxic substances present.

NON-VOLATILE: 61%

VISCOSITY: .65 poise at 25°C. when 4 volumes enamel are thinned with 1 volume Naphtha (AN-VV-N-96).

WORKING PROPERTIES: Excellent leveling. Wet hiding power: 1700 sq. ft. per gal. (Pfund Cryptometer).

DRYING TIME: To touch in 6 minutes; hard in 47 minutes.

LIFTING PROPERTIES: Non-lifting at 1, 4, 8, 16, 32 and 96 hours.

ADHESION: Adheres well to aluminum, steel, zinc chromate primed surfaces, and sealer-surfacer combinations.

RESISTANCE TO FLUIDS: Retains satisfactory film characteristics after immersion in water, hydrocarbons and hydraulic fluid.

FLEXIBILITY: Withstands 180° bend around 1/8" rod after baking at 212°F. for 4 days.

INFRA-RED REFLECTANCE: Complies with requirement, having a reflectance lower than Aircraft Grey and higher than Olive Drab Porcelain Standards.

REMARKS: This camouflage finish is an excellent final coating over zinc chromate primer or sealer-surfacer combinations. Its extreme durability, water impermeability and close adhesion are a measure of desirable protective qualities. Visual and infra-red light falling on the enamel film result in excellent camouflage effects to the naked eye and the aerial camera.

AIRCRAFT FINISHES

• Write today for our new and complete file folder of U. S. Army, Navy, and Air Force Specification Finishes . . . and remember that our laboratory is at your service in the development of new and improved formulations to meet specific finishing problems. Send for folder describing our modern production facilities.

STOR CHEMICAL CO., ROCKFORD, ILLINOIS, U.S.A.

York, N. Y. Tempil° therometric products are supplied in three widely different forms, therefore are highly versatile and convenient to meet any difficult plant operation. A brief description of each type follows:

Tempil° pellets (small flat discs like a lozenge) are available in 25° intervals from 125° to 350° F. and from there on to 1600° F. in 50° intervals. Pellets are clearly marked with the temperature at which they melt, and in a distinguishing color for each melting point.

Tempilstiks° are available from 125° to 300° F. in 25° intervals, and from there on to 1400° F. in 50° intervals. Each Tempilstik° will give up to 1000 determinations. Similarly to a Tempil° 300° pellet, a 300° Tempilstik°, drawn across a heated surface, leaves a chalk-like mark if the surface is below 300° F.; this will melt into a liquid streak sharply when the surface reaches 300° F.

Both pellets and stiks have a sharp rapid melting action at the stated temperatures. Thus, Tempil° 200° and 300°, etc., melt sharply at 200° and 300° F. respectively; Tempils° are claimed to have a mean accuracy of within 1% of the designated temperature. Pellets and stiks are especially valuable in the black heat range where the importance of control is particularly apparent.

Tempilaq° is an emulsified Tempil° compound suspended in a quick-drying fluid. A thin smear or daub is applied to the working surface and dries instantly. It works equally well on metal, glass, ceramic, plastic, or wood surfaces. It is a new form that is easier to use under certain conditions, especially on polished surfaces, on the inside of tubes or castings, and in other inaccessible places, such as overhead areas. Tempilaq° is packaged in 1½-oz. bottles with brush applicator, and has the same temperature and degree ranges as the pellets. Each bottle will provide 300 determinations. When the temperature stated on the Tempilaq° bottle is reached, the applied daub liquifies sharply; on cooling, it solidifies, leaving a glossy or vitreous mark distinctly different from the original smear. This mark can be easily removed.

There is still more to be related on the foregoing general subject, but I believe that your specific questions are herein definitely answered.—J. VORTELL.

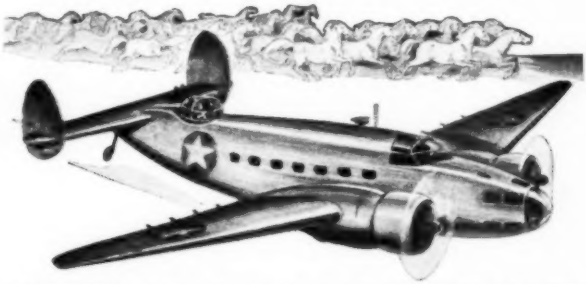
Painting Over Waxed Woodwork

In April issue of INDUSTRIAL FINISHING, page 78, I notice that I. C. Co. asked about painting over waxed woodwork. There is no short cut for doing this kind of a job. This was covered in a published answer, but I'd like to add a bit to it.

One of the best methods of removing wax is to use a floor cleaner, of which there are different kinds on the market. Apply hot and scrub with a stiff brush, getting well into the crevices of moldings so that all of the wax will be removed. After this treatment, wash the surfaces with clear water, and rub with steelwool at the same time. This will take off the surplus wax and will also kill any gloss on the finish.

After this, dry sandpaper the old finish to give a "tooth" for your coating. Otherwise your paint will be on a smooth surface and every knock will cause a spot to

FAMOUS FINISHES



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Pittsburgh's Super-Smooth Camouflage Finishes Conserve The Horsepower Which May Be Lost When Rough Finishes Are Used

A FINISH may follow government specifications faithfully—may pass inspection tests—yet have a definite roughness that subtracts horsepower from a plane's performance.

Because of their long experience in the industrial field Pittsburgh technical men have been able to develop airplane finishes of great smoothness. They cut down wind resistance to a minimum—increase that margin of superiority that may mean the difference between victory and defeat in aerial combat.

Pittsburgh's wartime finishes do more than follow specifications. Into each formulation we endeavor to put plus-over-minimum requirements to take care of difficult operating conditions.

Free Advisory Service. Pittsburgh's vast experience in all types of industrial finishes can save you time and money. A phone call, wire or letter will bring a Pittsburgh representative to your office for consultation.

PITTSBURGH PLATE GLASS COMPANY — Industrial Paint Division, Pittsburgh, Pa. Factories: Milwaukee, Wis.; Newark, N. J.; Houston, Tex.; Los Angeles, Calif.; Portland, Ore. — Ditzler Color Division, Detroit, Mich. — The Thresher Varnish Co., Dayton, O.

PITTSBURGH *Industrial* **FINISHES**

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come off to the bare wood, which is hard to repair and also it looks bad.

Now you are ready to apply three coats of flat undercoat—the first two dead flat, the third coat half undercoater and half semi-gloss, such as you want to use for the finish. Sand after each coat. As a fourth coat, use your straight semi-gloss paint and you will have a long-standing perfect job.—J. K. Cooper.

Waterproof Coating for Laundry Washer

Referring to D. D. Co.'s question under the above title, published in May issue, page 76, we manufacture no varnishes or finishing products, but for many years have been manufacturers of water-repellant wood preservatives. While we can not speak from exact knowledge of your specific problem, we believe, from the experience we have had with similar problems, that the failure of the varnishes is caused both by the action of hot water and the suds on the surface, and by excessive moisture in the wood. The best approach to the problem, therefore, would be to do everything possible to reduce the moisture in the wood, thus maintaining a dried bond between varnish and wood—and also you will need to find a type of varnish that will resist the water and soap-suds.

Our experience has been that water-resistant varnishes of the spar type are greatly improved in performance and durability by water-repellant treatment of the wood. Where the wood is exposed to conditions that promote fungus growth we recommend Woodlife Toxic Water-repellent Preservative; where only water-repellent protection is needed, Woodyouth may be used. This is identical to Woodlife in water-repellent effectiveness, but contains no toxic chemicals for the prevention of fungus growth. Literature which deals with many of the more common uses of these products is being sent to you, as it may be of some assistance to you in throwing light on your problem.

The treatment of wood cylinder laundry washers would be accomplished by immersion of the wood parts after all machining had been completed. A minimum immersion time of three minutes is recommended, but this varies with the type of exposure involved and with the species of woods that may be used. Woodlife or Woodyouth treated wood may be varnished or painted as soon as it is dry which, under ordinary conditions, is within a period of from 24 to 48 hours.

If you have any established test methods by which you determine the serviceability of varnishes for your purposes, we suggest that you treat a few samples of wood with one of these products the next time you run some tests. If, on the other hand, we can be of any service to you by making tests in our laboratory, we shall be glad to do so. In this event it would be desirable that we have several pieces of wood you are using and a small sample of the varnish you plan to use. . . . —PROTECTION PRODUCTS MFG. CO.

Our Arm-R 35, as it was made 18 months ago, would serve your purpose very well; but several of the ingredients are no longer available to us, except under allocation restrictions, which we feel sure would not permit us to supply you for the above-named use.

INDUSTRIAL R FINISHES•

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Decalcomania Lacquer No. 1096

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Silk Screen Stencil Paste

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FINISHING PRODUCTS CO.

CARLSTADT NEW JERSEY

However, we have a combination in mind involving no allocation materials, and hope to check on this in a few days. If this works out, as we hope it will, we will communicate with you further.—GENERAL FINISHES, INC.

Flexible Abrasive for Cutting, Cleaning

ABRASIVE surfaces that are more or less flexible continue to have an increasing number and variety of applications. Recently my attention was called to an interesting development in the form of an abrasive element that is used like a slender flexible cone. It is formed into a conical shape by wrapping abrasive cloth spirally.

Hard-to-get-at places in metal parts that need to be finished can be readily reached with these abrasive cloth cones. They are made by a manufacturer who has had long experience in the production of abrasive cloth products. They are available in several shapes and sizes, in all of the standard grits. The wear, which comes on the revealed spiral edge of the cloth, where it is in use, causes it to brake down progressively and uniformly, thus presenting new and sharp grits to the work continually.

Other cases come to mind where abrasive grit, held in a soft rubber binder, is exceptionally good for finishing, polishing, and de-burring. It is interesting to know that not only are wheels available for such an application, but that soft rubber-cushioned abrasive also may be obtained in rods, blocks and other special shapes that may be needed.

The de-burring of holes is a job where considerable time may be wasted unless a quick method of doing the work is devised. The spirally wrapped abrasive cloth cones, previously mentioned, may be used for this purpose, but recently I noticed a method that is even faster and better. In this application, abrasive discs of cloth are slit or slotted radially, at intervals around their outside edge, so that the cloth disc may be forced through a hole somewhat smaller in diameter than the disc, while it is revolving on a special arbor in a portable hand tool. In fact, two such slotted abrasive cloth discs are mounted back to back on this little arbor, so that the abrasive is exposed on both faces.

In operation, the revolving double-disc assembly is thrust through the hole, and then drawn back through in the opposite direction. In this way the two discs "cup" first in one direction and then in the other, effectively de-burring the edges of the hole on both sides. Holes from ⅜-in. to 5½-in. in diameter may be smoothed in this manner. Where only one side of holes is being dealt with, only one abrasive disc need be mounted, and it is not thrust clear through. Discs of this type have been made available by one of the large abrasive manufacturers.

The flexibility and possibilities of various types of abrasive belts are too well known to require more than mention here. All of us can easily call to mind how important they have been in helping to turn out various types of work.

Possibly the use of flexible or so-called pneumatic sanding drums are less well known. These abrasive drums are suitable for sanding various types of rounded work where the smoothness of the surface is more important than its accuracy of contour. These barrel-shaped drums when fully inflated, carry the abrasive on their outer

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surfaces like any abrasive drum. When fully inflated to barrel shape, they can be used for polishing concave surfaces that are not too severe, but when they are only slightly inflated, they are sufficiently soft to adapt themselves to external rounded contours of almost any form. This feature makes them highly useful.

One type of portable belt sander should be mentioned too. It can be provided with a flexible shoe to back up the belt, so that it will adapt itself to slightly curved surfaces, such as are encountered in boat building and similar work. A unit of this kind is highly useful for smoothing work that would be extremely difficult to sand by other means.—BING.

Caustic Splashes

EVERY so often we have an accident caused by an employe setting or dropping a pail of caustic or acid material on the floor, and some of the material splashes up high enough to strike his face. For anyone doubting that liquid splashed from a pail dropped 2-ft. to a height of 6-ft., we would suggest that he take a pail of water, drop it straight down to the floor and see what happens.

Under the right conditions, a wave will start, rush to the center, causing a small jet to shoot suddenly upward, sometimes as high as 8-ft.

One recent accident to a helper in a textile finishing plant resulted in caustic soda being splashed in one eye, resulting in loss of sight in that eye.

The answer is obvious. Employes who have to handle acids and caustic materials should always wear adequate eye protection, although it may not appear that carrying a pail of this material would result in its getting in someone's eye.

In this particular case, the worker was equipped with a face shield, but it was not in its proper protective position. While a face shield is some protection, caustic soda has an unusual tendency to run over the skin so that only the best splash-proof goggles are effective.—NAT'L SAFETY COUNCIL.

Alkyd Resins Go to War

ACCORDING to a recent estimate based on 1940-41 figures, 16% of glycerine production went into the manufacture of resins. This means that tremendous quantities of glycerine were employed in making alkyd resins and ester gums during that period.

Although figures are not yet available, there is good reason to believe that the production of these resins, more especially the synthetic alkyd resins, was much higher in 1942 and will be even greater in 1943. This is because alkyd resins have gone to war as important constituents of protective coatings for all types of military equipment.

These alkyd resins, often referred to as "glyceryl phthalate resins" because they consist chiefly of the reaction products of glycerine and phthalic anhydride plus suitable modifying agents, are outstanding for the desirable properties they afford to paints, varnishes and lacquers. In lacquers, for example, alkyd resins impart increased resistance, improved adhesion and flexibility retention.

During peace-time, these alkyd-containing lacquers found extensive use in coatings for automobiles, refrigerators and similar products. Used in conjunction

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If it's protective coatings for war products you need, we can meet your requirements and U. S. Government specifications with materials that withstand the most rigid tests.

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with other resins, such as urea-formaldehyde resins, alkyds serve to increase the durability, resistance and improve other desirable qualities of the finished paints and enamels. Suitably modified with oils and other substances, these glycerine-formulated resins can be "tailor made" to fill practicaliy any requirement or specification.

It is understandable, therefore, why these resins enter so extensively into the manufacture of the paints and enamels used by the Army to protect much of its equipment. Glyceryl phthalate type resins, for example, are specified for making rust-inhibiting primer paints. To this may be added the tremendous demand for alkyd resins by both the Navy for new ships and the Maritime Commission for new freighters to carry supplies and Lend-Lease materials.

Alkyd resins are also demanded by many government aircraft specifications. Thus one typical joint Army-Navy aeronautical specification which applies to cylinder finishes calls for a glossy black, heat-resisting glyceryl phthalate enamel. Similar specifications require the use of alkyd-containing enamels for finishing or protecting other aircraft engine parts.—GLYCERINE FACTS.

Measures Gloss Accurately

The American Instrument Co., 8020 Georgia Ave., Silver Springs, Md., announces the new Aminco-Scott Glossmeter that measures high, medium and low gloss (from 0 to 100%) of painted and finished surfaces. Illumination is adjustable from minus 30° to plus 70° from the normal.

Measurements can be made rapidly. For example, a complete gloss curve of a high gloss sample can be obtained in approximately 30 minutes.

The instrument has sufficient sensitivity and wide range to measure relative apparent reflectance from high gloss to flat gloss without the use of neutral filters, wedges or similar devices. The entire outfit weighs only about 55-lbs.

Mysteries of Infra-Red

INFRA-RED is a word frequently encountered these days. We read about it in connection with the war effort, with aerial photography, camouflage and the like. From the Color Research Department of the Eagle Printing Ink Co., Division of General Printing Ink Corp., New York, come a few interesting notes meant to clear up some of the mysteries of infra-red in the average human's mind.

Infra-red rays are those invisible colors lying immediately next to visible red in the spectrum. Having long wave-length they are powerful in penetrating mist and fog. Whereas blue colors, of short wave-length, are quickly split up by atmosphere (accounting for the blue of the sky), red and particularly infra-red have the ability of carrying through. Thus an infra-red camera is sensitive to these rays and will photograph objects and distances which to the normal eye might be clouded in bluish mist.

In camouflage, another phenomenon takes place to baffle the wits of the artist of concealment. The green chlorophyll of nature, found in grass, leaves and foliage, has the curious quality of reflecting infra-red light effectively; hence it will photograph as bright in tone in an infra-red photograph. On the other hand, ordinary green paints, made in imitation of nature, may photograph almost black —despite the fact that the actual leaf and the simulated leaf may appear quite alike to the human eye.

Science, however, has been able to formulate paints and finishes which are high in infra-red reflectance and thus has been able to fool the camera as well as the eye.—H. K.

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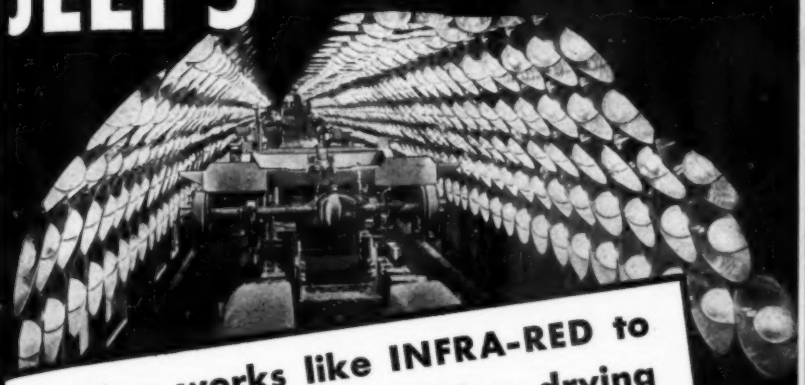

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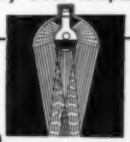
Instead of drying slowly inward from the surface, infra-red rays penetrate deep into lacquers, paints and enamels to start instant baking *from the inside out,* thus preventing surface film and saving up to 95% time in many applications.

Birdseye Infra-Red is so much better, faster, cheaper, easier to use that Bulldog Electric, Curtiss-Wright, Allis-Chalmers, White Motors, Allison (G. M.), Dow Chemical and other national war plants have adopted its use. Costs less to install, less to operate, and less to maintain. For complete data write today for booklet N6.

"BULLSEYE" for 100% Control

Inside-lined with a pure silver ring, the "Bullseye" prevents "spilled rays" and saves 25% heat loss averaged with ordinary clear lamps.



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Laboratory Oven Bulletin

A 4-page bulletin printed in blue and black describes and illustrates the new features and special merits of laboratory ovens that are designed, manufactured and for sale by Despatch Oven Co., Minneapolis, Minn.

Infra-Red Gas Burners Shown in Bulletin

A colorful 16-page bulletin explains and illustrates the "infra-red principle" gas burners, as employed for paint drying and other production operations that involve the economical use of heat. For a free copy, write Burdett Mfg. Co., 19 N. Loomis St., Chicago, Ill.

Temperature Control Bulletin

A new bulletin of 16 pages, 8½x11-in., contains illustrations and descriptions of the Wheelco temperature measuring and control instruments. Ask for Bulletin Z6200 when you write to Wheelco Instruments Co., Harrison & Peoria Sts., Chicago, Ill.

Rust-Proofing Folder

The Black Bear Co., Inc., of Long Island City, N. Y., has issued a new folder which is designed to help war production men who are concerned with rust-proofing. The folder explains the uses and methods of application of Black Bear Anti-Rust "O," and Black Bear Anti-Rust "I." The "O" compound is designed expressly for outdoor use; Black Bear "I" is recommended for indoor use only. Both types are widely used for the protection of machine parts, castings, stampings, fabrications, assemblies, etc., for shipment or storage. Readers wishing copies of this folder should address requests to: Black Bear Co., Inc., 23-01 44th Dr., Long Island City, N. Y.

Infra-Red Heating Bulletin

A new 12-page bulletin, 8½x11-in., contains descriptions and interesting illustrations of infra-red lamp installations for baking, drying, preheating, etc. The company points out that the near infra-red process has been instrumental in conserving time, space, energy, materials and manpower—all those essentials which are paramount for a quick and decisive Victory. For a free copy, write The Fostoria Pressed Steel Corp., Fostoria, Ohio.

Booklet on Color, Free

An interesting little booklet entitled, "Notes on the Science of Color", and containing the electromagnetic spectrum in full color (red, orange, yellow, green, light blue, dark blue) has been published by the General Printing Ink Corp., 100 Sixth Ave., New York, N. Y.

Aristotle's theory on color, the viewpoints advanced by Descartes and Robert Boyle, Sir Isaac Newton's observations and experiments, as well as the importance of the electromagnetic spectrum, are but a few of the items discussed in this booklet. The data assembled in this informative booklet makes one realize that there is a lot more to color than greets the eye.

Codes for Fire-Extinguishing Equipment

The N. F. P. A. has recently published a 672-page volume entitled National Fire Codes for Extinguishing and Alarm Equipment. This is the book that plant engineers, managers, operators, safety directors, fire marshals, building and insurance inspectors, and all those who are responsible for fire protection have been looking for.

The number and diversity of these standards had become so great that it became increasingly difficult for the average user, who is interested in a wide variety of subjects to keep track of all the standards, when they were

DATA

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separately printed in small pamphlet form.

The present volume brings together for convenient reference the many standards dealing with the various types of fire-extinguishing and alarm equipment and related features of supervision, maintenance and organization. It is divided into seven sections.

The book has 672 pages, is illustrated with drawings and is attractively bound in red cloth. Price, $3.00 postpaid from the National Fire Protection Association, 60 Batterymarch St., Boston, Mass.

Facts About U. S. Govt. Specification Finishes

A new service catalog of U. S. Government Specification Finishes has been issued by Lacquer & Chemical Corp., 222 Fortieth St., Brooklyn, N. Y. It consists of a folder containing loose leaves 8¼x11-in., printed on one side only. Each leaf contains information about one of the company's finishing materials designed for a certain government specification; for example, "U. S. Army Air Corps specification 14105-B, Lacquer, Cellulose Nitrate, Camouflage." Following this are lists of its use, application, colors, thinning, water resistance, gasoline resistance, flexibility, durability, specular gloss and photographic infra-red reflectance.

The data is up-to-date as of the time of publication. However, the company is arranging to take care of that by issuing corrected data sheets as supplements to this catalog, just as soon as it obtains, confirms and verifies the latest information.

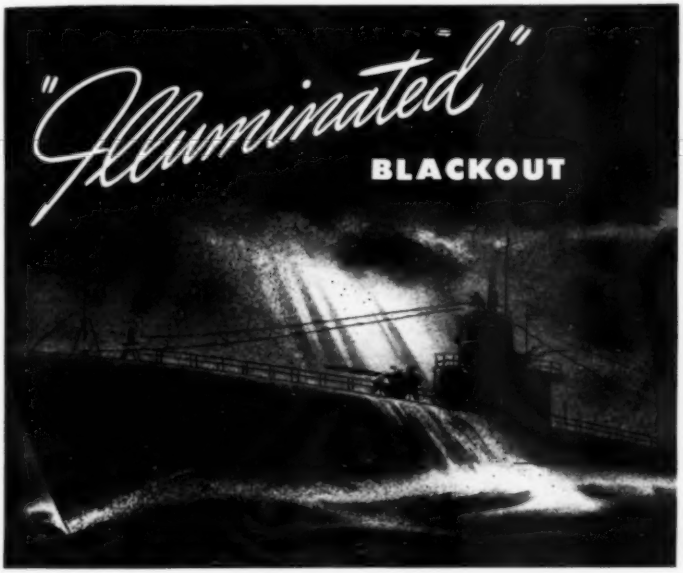
The company manufactures government specification finishes, plus a complete line of quality lacquers, thinners, enamels, synthetics, primers and surfacers.

Insulating Varnish Bulletin

The Sterling Varnish Co., 141 Ohio River Blvd., Haysville, (suburban Pittsburgh) Penna., has issued Bulletin 143 entitled "Thermobonds, the New Insulation".

The bulletin describes ten insulating mediums that have been thoroughly tested in the applications for which they have been produced by subjecting them to excessive heat, heavy overloads, and atmospheres crowded with acid or alkali fumes and abrasive materials. The Thermobonds are produced for application to such units as high speed armatures, high cycle drill and grinder motors, heavy duty motors and transformers, and marine engine magneto coils.

Copies of this new literature are available on request.



ONE of the many puzzling problems arising from the life-and-death necessity for blackouts on the high seas is the reading of navigation instruments. For example, on one instrument the calibrations must be brilliant white for quick and easy daytime reading yet allow a faint green light to show through them at night. Used on a submarine, for instance, while cruising on the surface in the black of night, these figures must be visible only to the officers in the conning tower, without offering the slightest gleam or reflection to the enemy. To solve this problem, the dial markings were punched out and Arco then bridged these gaps with a sturdy paint film, bright opaque white for daytime reading, but transmitting a dull green glow at night.

Thus the Arco Research Laboratories meet specific needs with specialized products, tailored to fit.

Paints for Industry **THE ARCO COMPANY**
CLEVELAND, OHIO • LOS ANGELES, CALIFORNIA

Industrial FINISHING

Distributed monthly to finishing room and paint shop foremen, production superintendents and company officials of metalworking, woodworking and miscellaneous industrial plants where production finishing is a major operation in parts and products manufacture.

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Editorial

Get Suggestions From Workers in Factory

Most of the men and women who work in production departments of factories do more thinking about their work and the general system of operations than they are given credit for by management. It is natural for intelligent individuals to reason out why such and such operations are performed as they are; how certain machines, tools and work stations are designed and built like they are; and why certain procedures are followed in the course of production, maintenance and safety. Also, it is natural for many workers to think of something that might be an improvement—something that would save time, labor or material; or something that would contribute to safety. These ideas are valuable to the entire organization. They should not go to waste. The company should provide a practical and workable set-up for encouraging these ideas and getting them submitted in writing, or orally in regular group meetings or in private conferences.

A number of concerns have suggestion boxes and a plan of rewarding employes for constructive suggestions that are workable or which can be adopted profitably. For example, in one large organization, during the first month that a suggestion system was placed in operation, 42,000 suggestions were handed in for improvement of equipment, operations and practices. Of this total, 4600 ideas submitted by 2600 individuals were adopted. The company paid $53,000 for these voluntary ideas and considered the investment well worthwhile. Many of its employes were repeaters. One man led the list with 23 suggestions and was paid $255 in awards. Another received $135 for 13 suggestions; still another, $240 for seven suggestions.

Most workers are eager to make suggestions if they know that these ideas are welcome and will receive consideration from the management. The satisfaction of having one's ideas adopted and put into operation is the real thrill.

but management should give some cash award as a token of appreciation for any employe's ideas that are adopted.

In addition to providing a wealth of constructive ideas, an effective suggestion system has highly-desirable by-products. It fosters constructive thinking and provides an opportunity for employes to express this thinking in tangible form. It instills mutual confidence between management and labor. It develops employes mentally and, in many instances, helps to bring them to management's favorable attention.

Let's Avoid Profanity in Presence of Women

★ Now that so many women have gone into factory work, some men seem to think it is amusing or smart to use profane language in their presence. They deliberately use language that they would not dare to consider using in their own homes. They do not seem to consider how they would resent having their own wives or daughters subjected to the same indecent talk by other men. It is entirely unnecessary and ungentlemanly for any real man to resort to the use of vulgar or indecent language, either in the factory or elsewhere.

A man in overalls can be a gentleman, no matter where he works. Let us all do what we

---

★ Guest Editorial . . . Many readers can write an excellent editorial — two or three paragraphs that present a timely suggestion or valuable idea which will stimulate real thought on a live subject. The Editor welcomes guest editorials and pays for those that are published.

The Answer to the Shellac Shortage!

USE

RONCOLAC CLEAR R-637

A Shellac Replacement— not a substitute

Roncolac R-637 is extremely tough —more durable than shellac. It dries equally fast, is waterproof, has excellent adhesion, handles in every respect as easily as shellac. Roncolac Clear R-637 is not a hastily developed "war-baby." Because of its general all-around properties, many of which outperform Shellac, it will have a permanent place in the finishing field after the war. Order a trial lot. You'll want more!

Write for Full Details

RONAN

T. J. Ronan Co., Inc.

749 E. 135th St., New York City

Paints — Varnishes — Lacquers

New, Non-Restricted One-Coat Finish for Toys, Novelties!

Here's a real technical development — for makers of civilian goods. This product produces an absolutely even, high lustre finish on wood, in just one coat! It can be dipped or sprayed. It dries hard enough to decorate in 30 minutes, hard enough to pack in 2 hours.

Best of all, it's non-restricted—freely available in a wide range of colors, no priorities required. This line can be a life-saver. Let us hear from you.

DATA SHEETS on this and other industrial finishes are yours for the asking. Write. And ask us to quote on your requirements.

O'BRIEN VARNISH CO.
South Bend, Ind.

can to discourage and discontinue profanity and indecent talk. If we do this we will be contributing something toward making working conditions more pleasant for others. This, in turn, helps to make man power and woman power more effective to back up our boys at the fighting front.

Men, think of your own wives, sisters and daughters, and back the women who are helping to produce the material that our Government and our overseas boys so desperately need.—E. M. S.

An Executive's Ideas on Post-War Conversion

★ Most machine-tool manufacturers seem pessimistic about the outlook for their industry, with orders currently running more than 50% behind last summer. However, one cheerful voice, raised above the crowd, belongs to Joseph L. Trecker, executive vice-president of Kearney and Trecker Corp., important Milwaukee producers of milling machinery. He has recently been quoted as stating that the industry's prospects are not too gloomy for the duration of the war, and that they are tremendous for the period of post-war conversion.

In answer to our personal request for an extension of his views, Mr. Trecker has written us as follows:

"The views I expressed were not reported quite as fully as I had stated them. The machine tool industry will have to depend greatly in the future upon the reserves we are able to accumulate and establish out of current earnings, so that the necessary continuous development may be accomplished to meet post-war conditions.

"Inasmuch as the industry does not manufacture expendable war material, but rather has greatly magnified its production of its normal peacetime product, which also has long life (15 to 20 years) it is obvious that the production of machine tools for war industries has created tremendous supplies of these tools useful for peacetime production.

"However, it is being proposed by the (Government) renegotiators that the profits of the industry, which would normally accrue during a 10-year production period for a like volume of production, and which must be established as reserves to carry the industry for a considerable number of years, be taken away as war profits. Actually they should be allowed as necessary fund with which to enable the industry to develop and market peacetime products, either in the field of machinery or consumer goods.

"I have considerable hope that this thought will eventually predominate with the renegotiators, and consequently the industry will be in a position to survive, depending upon the individual abilities and capacities of the member companies."

Random Comments on the Industrial Scene

Our Forecast Correct—In the May issue of INDUSTRIAL FINISHING, this department pointed out the fact that well-informed Washington sources anticipated some reconversion of war plants back to civilian production by this fall. We also stated that the construction of new war plants was being halted.

Observation No. 1 was confirmed in a feature story in the

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NON-EXPLOSIVE

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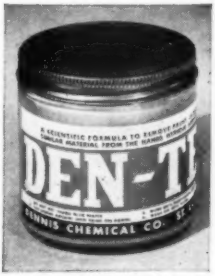

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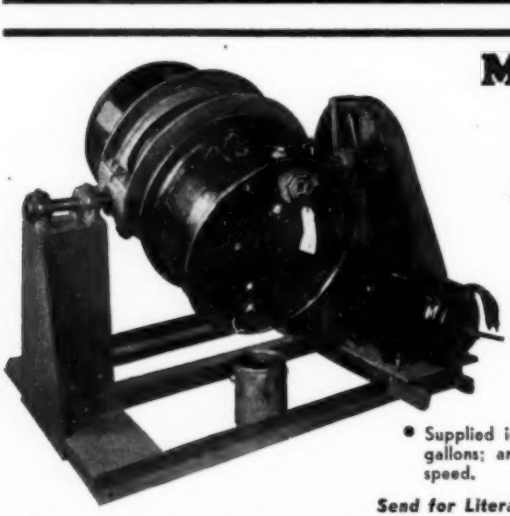

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Send for Literature!

THE VOL-U-METER CO., 75 Wilbury Place, Buffalo, N. Y.

New York newspaper "P M", on May 10th. And our second point was verified by an official WPB pronouncement issued on May 12th. Our item was written in April.

* * *

Reconversion Trends—The first tangible evidence of reconversion came recently, when the WPB advised truck makers to inaugurate plans for producing a modest quantity of heavy civilian units—possibly 8000—during the last six months of 1943. Manufacturing of some other civilian goods is expected to begin shortly.

* * *

Post-War Planning—From an advertisement by Warner and Swasey, manufacturers of turret lathes: "Some people think post-war planning now is somehow unpatriotic, premature, the wrong use of time. . . . What sort of welcome will it be for our soldiers if they come home to closed factories, with 'No HELP WANTED' signs — factories shut down while they're being converted to peacetime products?"

* * *

War Profits, 4%—Someone recently alleged that profit margins on war contracts have averaged 12½%. It is interesting to observe that a factual analysis of 40 leading manufacturers of war materials, conducted by the National City Bank of New York, shows that these companies averaged only slightly more than 4% profit on their total 1942 sales, after taxes. This is actually an overstatement, since practically all contracts are subject to renegotiation.

* * *

Automobiles After War—One well-known automobile manufacturer recently observed that if the industry builds 6,000,000 cars a year after the war, it will take four years to catch up with the normal

CHEMICALS BY GLYCO

For The
PAINT, VARNISH, AND LACQUER INDUSTRIES

Send for our new catalogue, "Chemicals by Glyco."

Glyco Products Company, Inc.
76 Court Street, Brooklyn, N. Y.

CROWN

"25"

This NEW Crown gun gives high efficiency and speed in production work and maintenance and other painting and finishing jobs . . Uses time-tested Crown "20" Spray Head assemblies . . Full Spray Width, Material Adjustment . . Write for literature and prices.

Built to Stand the Gaff

SPRAY GUN

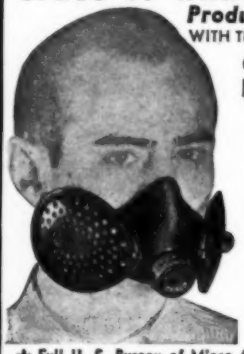
CROWN SPRAY GUN MFG. CO.
1218 Venice Blvd. Los Angeles, Calif.
Warehouses in Principal Cities

SAFEGUARD YOUR SPRAY BOOTHS

Apply Wyandotte Spray Booth Coating *first* for quicker removal later of layers of inflammable paint. It takes only a thin coating to make cleaning easier, speedier, more economical. Write Wyandotte Chemicals Corporation, J. B. Ford Division, Wyandotte, Michigan, for full details!

Wyandotte F-100 will help cut your floor-cleaning costs. Even heavy soil disappears when this remarkable compound gets to work!

SPEED UP WARTIME *Production!*
WITH THIS NEW
Cesco No. 94 RESPIRATOR



★ Full U. S. Bureau of Mines Approved (No. BM-2142) against Type A (Silica), Lead and Nuisance Dusts. Equip your workers with this new COMFORTABLE and SAFE Respirator for FASTER DEFENSE PRODUCTION. It's the "Cesco No. 94." Write.

Chicago Eye Shield Co.
2367 Warren Blvd. Chicago, Ill.

replacement demand interrupted by hostilities.

* * *

Flying Horsepower — Speaking of post-war automobiles, "Socony-Vacuum News" states that new developments in fuels will result in lighter, smaller, more powerful and economical engines. No engine now in operation can fully utilize the power inherent in gasoline being produced by the T. C. C. Synthetic Bead Catalyst. It is interesting to note that the new product must be diluted even for use in our most powerful military aircraft!

* * *

Joining Plastic Edges — We have been fascinated to learn of a development perfected by R. C. A. Laboratories — a machine that "sews" thermoplastics, such as Vinylite, Koroseal and Pliofilm, by radio frequency current. With the application of heat, the films fuse, just as metal does when welded. Already in wide war-time use, the process presents enormous peacetime possibilities.

* * *

Tomorrow's Aviation — And while we have an eye cocked on the future, we also note that Consolidated-Vultee Aircraft has a 400-passenger plane now on the drawing boards!

* * *

Another Conversion—We hear that the home washing-machine units are being converted into devices for shelling peas!

* * *

How to Win the War—

Breathes there a man with soul so dead
Who never to himself hath said:
"This scheme of mine will win the war!
Heaven—what are we waiting for?"

Most of us get occasional bright inspirations along this line. And we generally flounder about, in an

Tunisia Becomes a Springboard

AIRPLANES
GUN STOCKS
BOMB SIGHT BOXES
TOOL CHESTS
MARINE PARTITIONS
RADIO INDUSTRY, ETC.
SKIS
INSTRUMENT BOXES

GEN. DWIGHT D. EISENHOWER has just closed a brilliant chapter in the war against the axis. His direction of the Tunisian campaign will go down in history as an excellent example of the proper employment and coordination of land, sea and air forces, with just enough good old fashioned military strategy to confuse the enemy.

The United Nations now have a springboard from which to launch their attack against the under side of the fortress of Europe. America salutes our valiant men who contributed their part to this great victory and to the men on the production front who made the fighting equipment used.

Listed here are a few of the war products now being coated with our materials. Phone, wire or write and let one of our finishing experts help you "keep production rolling."

THERE'S NO TIME TO LOSE—THERE'S JUST TIME TO WIN!

THE LAWRENCE-McFADDEN CO.
Headquarters for Fine Finishes Since 1875
7430 STATE ROAD PHILADELPHIA, PA.

WITH MANY MATERIALS

SCARCE

you'll need new ideas to supply your customers with new and attractively finished items.

CLAREMONT FLOCKS FILL THE BILL!

Through the use of these tiny fibers of

COTTON, WOOL OR RAYON

your products take on a sparkling appearance and attract greater attention—at low cost. Easily applied by spray gun or screen process.

SAMPLES AND COLOR CARD ON REQUEST

CLAREMONT WASTE MFG. COMPANY

CLAREMONT, N. H.

The country's largest mfrs. of Cotton, Wool and Rayon Flocks

Speeds production for coating **WAR PRODUCTS**

500 Large Cartridge Clips Coated Per Minute
1000 1" Buckles Coated Per Minute with R-200

"SPEEDIP" Whirl Enameler and Coating Machine

A combination dipping-whirling machine for completely coating large quantities of small parts with lacquer, enamel, paint, oil, wax, etc. • All operations are within the machine. Parts are dipped into coating material, raised and whirled. Time—as little as 30 seconds. Speeds up production—cuts finishing costs—saves up to 90% of coating materials.

WRITE FOR FURTHER DETAILS OR SEND SAMPLES TO BE COATED.

RONCI MACHINE CO.
45 River Ave., Providence, R. I.

An Outstanding—

Shellac Replacement Product

ENAMELS
BAKING ENAMELS
LACQUERS
SEALERS
PRIMERS
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VARNISHES
SHELLAC
FILLERS—STAINS
FINISHING SUPPLIES

Has all the desirable qualities of Shellac.

Has extremely high resistance to water — Thins with alcohol — Dries fast and hard — Good adhesion — Sands easily.

It is a development of our laboratory and has been thoroughly tested over a long period.

A GENEROUS WORKING SAMPLE WILL BE SENT FREE ON REQUEST. WRITE TODAY.

NEW PERIOD PRODUCTION FINISHES

NEW YORK WOODFINISHERS SUPPLY CO., INC.
109 IMLAY STREET BROOKLYN, N.Y.
Established 1917

effort to direct these ideas to the proper Government Bureau. There is now an answer to our dilemma —Victory Center Inc., at 745 Fifth Ave., New York, N. Y. This office has been set up by a group of Columbia University graduates who are not available for military service, but who are anxious to help the war effort. They weigh each idea submitted, and if it has merit, they forward it in suitable form to the proper government or civilian agency.

* * *

Capitalism Marches On—This department has received permission from the Chamber of Commerce of the United States to quote these noteworthy remarks from a speech by Mr. Eric A. Johnston, president of that organization, which was delivered before the chamber's annual meeting in New York: "There are honest men in our midst who believe that democratic capitalism is played out, that it has run its course, and must give way to a super-state. Whether they know it or not, such people are singing tunes from the score written by Goebbels and other propagandists of the totalitarian way of life. Those tunes are false to the point of being grotesque. Far from being played out, free economy in our country is only getting into full stride. The horizons of opportunity being opened up by new industrial techniques, new materials, new products and new capacities for consumption are larger than ever before. Under capitalism, for the first time in history, we have developed the physical foundations for true abundance." —By LAWRENCE H. SINGER.

What we do to increase safety and decrease waste helps us, our associates, and the Nation.

★ ★ ★ ★

Specifications + PLUS!

Adaptation of formulae to the individual requirements of busy war contractors.

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Within specification limits there are many possibilities of improvement in speed, workability, and freedom from rejects.

This PLUS factor is worth considering. We'd like to tell you more about it.

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THE VARNISH PRODUCTS COMPANY
CLEVELAND, OHIO

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Write today for information on

SEA-LAC

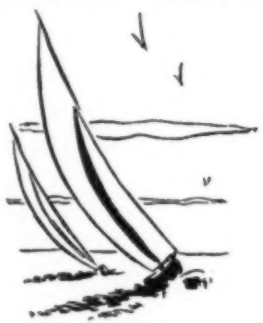
Wartime and Substitute Finishes!

These finishes, in stock for immediate shipment, include lacquers, primers, synthetics, coments, dopes and thinners . . . all formulated and tested for current war production requirements. Approved in actual use.

With SEA-LAC it's easy to change steel to brass, brown plastics to white, or put a porcelain-like finish on pressed paper. Get acquainted with the full range of SEA-LAC finishes. Hundreds of substitute finishes to choose from.

Duralac Chemical Corp.

84 Lister Ave. Newark, N. J.



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Desires position. Can produce any type finish. 26 years as foreman finisher, also experienced as salesman for industrial finishes. Address IF-929, care Industrial Finishing.

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Desires new connection. 15 years' experience in large conveyorized plant; thoroughly understands production and shortest cut to best finish; excellent position in draft deferment. Address IF-930, care Industrial Finishing.

SALESMAN

With excellent following among industrial accounts in New York, New Jersey, Philadelphia area, and lower Connecticut is interested in handling specialty repeat items. Basis either straight commission or jobber arrangement. High-grade representation assured. Address IF-931, care Industrial Finishing.

WANTED

By experienced salesman, line of Industrial Finishing Materials or Interior and Exterior Paints and Enamels for Dealer, Contractor and Jobbing trade in Illinois and So. Wisconsin. Address IF-932, care Industrial Finishing.

POST-WAR SITUATION

I would like to make an arrangement now with a well-established Paint, Varnish and Lacquer manufacturer to prepare for post-war trade overseas, a company who will appreciate 26 years of selling protective coatings throughout South Africa, South America and the Orient, and also the valuable connections already made in these countries. Agreeable to join in domestic work to fully acquaint myself with line. Address IF-936, care Industrial Finishing.

SALESMEN FOR INDUSTRIAL FINISHES WANTED BY

One of the oldest paint, varnish and lacquer manufacturers having complete line of all types of industrial finishes. Can offer attractive proposition to qualified salesmen for the territories in Eastern Pennsylvania, Connecticut, and New York. State qualifications and previous experience. Replies held strictly confidential. Address IF-937, care Industrial Finishing.

POSITION AS SALESMAN

Desired by man of 30 years' experience as foreman finisher and salesman of finishes. Still young at 49, and capable of doing a good job of selling, or serving as technical man. Territory, preferably Indiana, Ohio, Kentucky, West Virginia. Address IF-934, care Industrial Finishing.

BAKING ENAMEL SELLOUT

200—55-gal. drums DuPont Black Synthetic Baking Enamel.
100—55-gal. drums Forbes Grey Baking Primer.
In excellent condition. All or part. No priorities required. $.95 per gallon. RAND CHEMICAL PRODUCTS CO., 2335 So. Mich. Ave., Chicago. Phone, CALumet 2866-67.

FOR SALE.

Roller coating machine. 10-in. rolls. Enclosed motor. Costs $450.00. Sell for $200.00 cash. Like new. NEW PROCESS STUDIOS, 49 E. 21st Street, New York.

WILL PURCHASE

One of America's larger paint manufacturers, planning a post-war expansion program, seeks a protective coating business having annual sales of one million dollars, or more. Will buy controlling interest or purchase outright. This is an excellent opportunity for owners desirous of selling to liquidate part or all of their holdings. You may rest assured your reply will be treated in strict confidence. Address IF-935, care Industrial Finishing.

OLIVE DRAB LACQUER FOR SALE CHEAP

High grade Nitro Cellulose Lacquer made from the finest gum, cotton, solvents and color pigments. Suitable for spray use on wood or metal. Liberal quantities available in Olive Drab and other dark colors. Price greatly reduced. Write for full details.

STEELCOTE MANUFACTURING CO.
ST. LOUIS, MO.

— WANTED —

★

CONTROL AND RESEARCH CHEMICAL ENGINEER—An excellent opportunity is offered to a graduate chemical engineer who is fully acquainted with laboratory and plant control of synthetic resins, varnish oils, lacquers and purchasing of raw materials for this type of production to act as assistant to the president of our company.

Our company is new and plant is small; however, facilities are modern and complete, and geographical location ideal. We enjoy business connections that offer unparalleled research personnel and laboratory equipment; and these are available at all times, in addition to our own facilities. At the present time, 90% of our production is going to Government subcontract work, but we have an enviable record for keeping our civilian customers supplied with quality materials. Post-war ideas are new, to say the least, quite radical to the varnish and lacquer industry.

Should you be interested in becoming a part of our present and post-war plans, we shall be pleased to receive your letter submitting information on your education; past and present work; a picture of yourself, if possible; and such detail as you may think helpful to us. If your qualifications are interesting to us, we will welcome the opportunity to meet necessary expenditures for a personal interview, when salary and such detail can be worked out to satisfaction of all concerned.

Those now employed in war work cannot be considered; nevertheless, we shall be pleased to hear from any who are interested. Naturally, all inquiries will be treated with the utmost confidence, and all correspondence will be returned at your request.

★

Address I. F. 928, care of Industrial Finishing Magazine Indianapolis, Ind.

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Zapon Division—Atlas Powder Co. 2

STANDARD D-4 Abrasive Band Grinder

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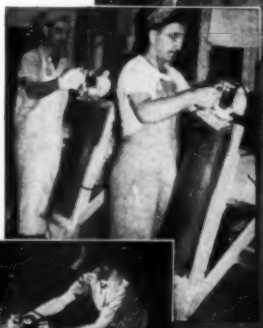

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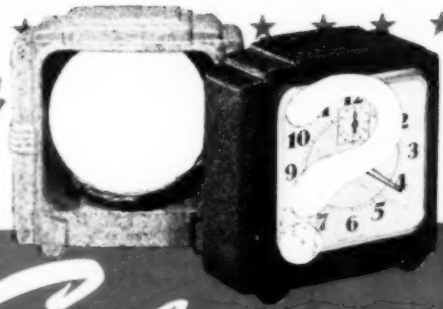

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